

AMERICAN **FORESTS**



FEBRUARY 1939

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"I Wonder What Time My Daddy Will Telephone?"

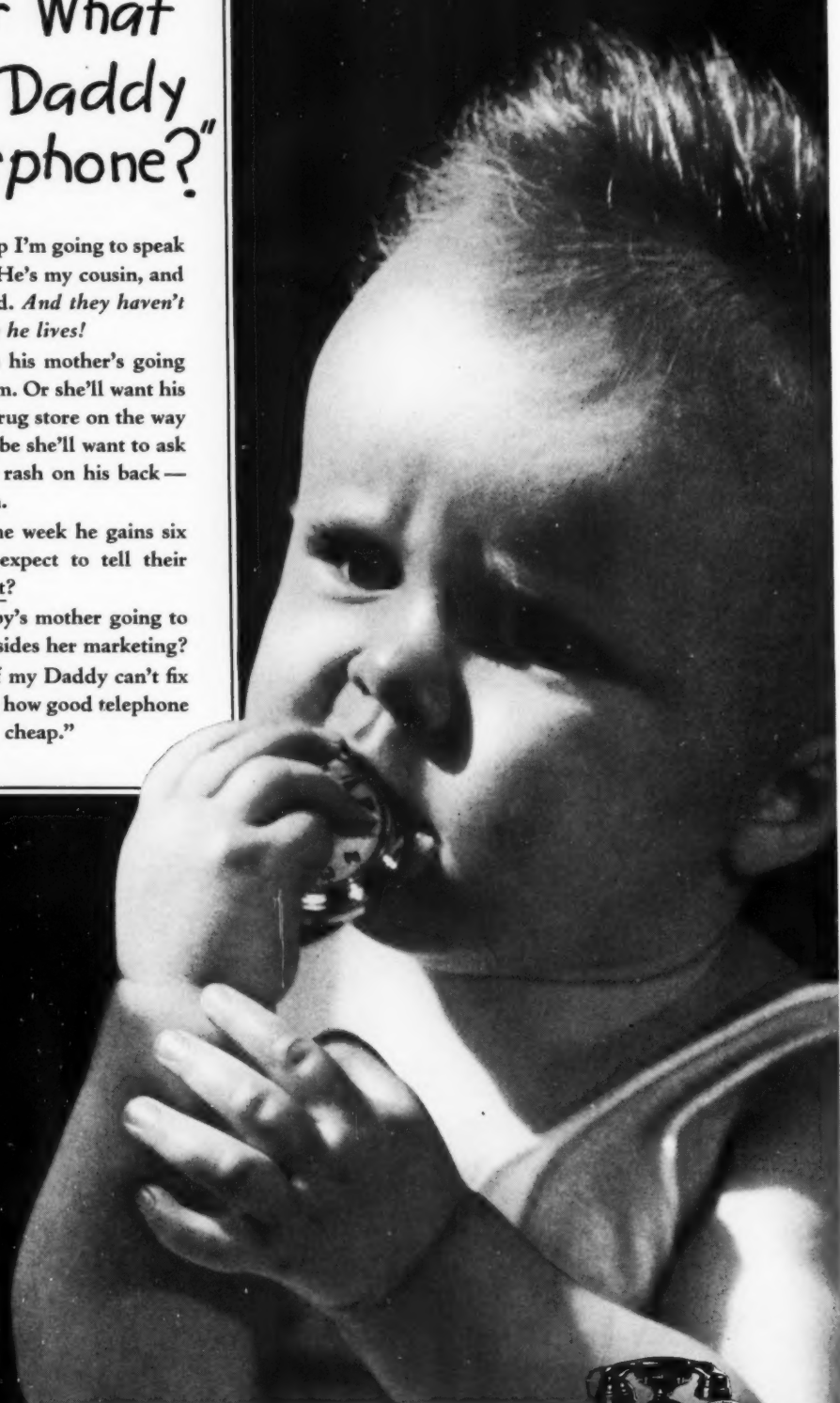
"The minute he calls up I'm going to speak to him about Bobby. He's my cousin, and he's just five weeks old. *And they haven't got a telephone where he lives!*

"One of these days his mother's going to run out of his talcum. Or she'll want his father to stop at the drug store on the way home for oil. Or maybe she'll want to ask the doctor about that rash on his back — Bobby's back, I mean.

"Then suppose some week he gains six ounces. Don't they expect to tell their friends news like that?

"Well, how is Bobby's mother going to do all those things besides her marketing?

"I'm going to see if my Daddy can't fix it. He's always saying how good telephone service is — and how cheap."



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**COMING**

It was announced last month that Forest Fire would be the subject of a special issue of *AMERICAN FORESTS* in April. Now we are able to announce a number of the twenty or more articles which will make up its contents.

There will be "Forest Fire—the Red Paradox of Conservation," by Colonel W. B. Greeley, former chief forester of the United States; "Forest Fires—Challenge to Federal Leadership," by Senator Charles L. McNary; "The Red Menace to Wildlife," by Dr. Ira N. Gabrielson; "Men Against the Flames," by F. A. Silcox, chief forester of the United States; "Organizing For Common Defense," by Wilson Compton, secretary-manager, National Lumber Manufacturers Association; "Fire, Floods and Erosion," by H. H. Bennett, director, Soil Conservation Service; and many others.

Features of the March issue will be "Rain on the River," by Arthur Stanley Riggs; "Markets for Hurricane Timber," by C. P. Winslow; "Marsh Firebreaks," by William C. Cox; and others.

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CONTENTS

VOLUME 45

February, 1939

NUMBER 2

AMERICAN FORESTS

Page

- 50 READERS' FORUM
- 53 THE EDITOR'S LOG
- 55 NORTH CAROLINA LOOKS AHEAD IN FOREST
TAXATION
By James G. K. McClure
- 58 DEATH ON MURDERERS' CREEK
By Blye Englis
- 60 THE MAGIC OF THE CYPRESS SWAMP
By R. K. Winters
- 65 DR. HOFFMAN'S CHERRY TREE
By Ottamar Hamels
- 66 THE NATION'S TIMBER STAND
By Raymond Garver
- 69 EDITORIALS
The Timber Survey
Farm Woodlands and the AAA
- 70 TO THE HIGHEST MOUNTAIN
By Mary Downing
- 73 LOGGING THE BLOWDOWN
By Stewart H. Holbrook
- 76 LIMBER PINE (Tree Series)
By G. H. Collingwood
- 80 THE RANGER'S CORNER
Man Meets Bear—By George K. Oliver
- 82 CHIEF FORESTER PRESENTS REPORT
- 84 YOUR SHADE TREES
By A. Robert Thompson
- 88 NEW PUBLICATIONS
- 91 ASK THE FORESTER
- 92 THE CONSERVATION CALENDAR
- 93 FORESTRY IN CONGRESS
By G. H. Collingwood
- 96 "WHO'S WHO" AMONG OUR AUTHORS

The Editors are not responsible for loss or injury of manuscripts and photographs while in their possession or in transit. All manuscripts should be accompanied by return postage. The Editors are not responsible for views expressed in signed articles . . . Notice of change of address for *AMERICAN FORESTS* should be received by the tenth of the month preceding issue.

Member A. B. C.

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READERS' FORUM

CCC MILITARY TRAINING

SIR: I have just received my January copy of *AMERICAN FORESTS* and hasten to reply to your editorial on the CCC.

Your suggestion to give the CCC military training is one of the most alarming suggestions I have read in a long while. It is enough to make anybody's hair stand on end to have it come from a person in your position. If the suggestion were from an army man it might be discounted, but I feel you have committed a terrible blunder in making such a suggestion and furthered Fascism to a considerable extent. Threats to our American ideals are not from foreign shores but from our internal enemies such as Martin Dies who, in attending a banquet given in his honor by the German-American Bund, proves the aim of his investigations; and the *New York Times* and *Herald-Tribune*, which deliberately publish distorted news.

The hue and cry for military protection seems to be nothing but a smoke screen to distract attention from what are truly un-American movements—movements now afoot to suppress free assembly and free speech.

I think that if you had suggested that the CCC enrollees be taught how to discern and resist the propaganda of the Fascism, anti-Semitism, and Catholicism instead of how to carry a gun, you would have made a constructive courageous motion in the cause of democracy. A copy of this letter is being sent to Mr. Fechner.—*Donald De Leon*, Fort Collins, Colorado.

CINCINNATI'S TREE LOVERS

SIR: When I went to the public schools here in Cincinnati, our superintendent was John B. Peaslee, a great lover of trees. I well recall that he would speak to the assembled school over and over again on the subject of trees, always reciting that wonderful poem, "Woodman Spare That Tree." One of our most beautiful parks here is Eden Park, which was purchased from the Longworth family. As the family had large vineyards, there were no trees on the place. So Superintendent Peaslee arranged that Arbor Day be observed, three years in succession, by the public schools, and that the children, under the guidance of their teachers, planted young trees in the park.

These trees are now over fifty years old and are very beautiful. I distinctly remember that I was the spokesman for my class on the first Arbor Day. We planted three trees, and in a short talk I said that they were planted in memory of Ralph Waldo Emerson.—*August H. Tuechter*, Cincinnati, Ohio.

FOR HAPPIER READING

SIR: We thank you for your unfailing interest in the Hospital Reading Society and for the one hundred copies of *AMERICAN FORESTS* received in December.

Your excellent publication is a source of uplift and happiness to those who suffer for want of reading matter and we take pleasure in distributing it where there is a real need. We sincerely look forward to a continuance of your cooperation the coming year. — *Miss Helen Brodhead*, Executive Secretary, Hospital Reading Society, New York City.

WHY NOT NATIVE PLANTS?

SIR: In response to criticisms of the overwhelming use of Japanese cherry trees in the Tidal Basin and parks of Washington, D. C., it has been suggested that dogwood be introduced in the future. This calls attention to the possibility of orienting landscape methods in that city in favor of a large range of our native flowering shrubs the existence of which is wholly unknown to the general public through the craze over imported exotics.

Had the proffer of Japanese flowering trees of the cherry and allied families or genera been confined to some selected section of Rock Creek Park in Washington, as has been done on a small scale in Fairmount Park in Philadelphia, recognition of the beauty of these oriental members of the rose family would have been worthwhile. But the complete displacement of all interest in our own shrubs in the excessive use of cherry trees in the Tidal Basin at Washington, along with the enormous advertising the country over of the phenomenon due to tourist visitation, has led to similar movements elsewhere to the embarrassment of park commissioners and landscape gardeners who are compelled by public sentiment to place similar displays where they are quite out of place and prejudicial to real development of American gardens and American landscape art.

If a step be made in the introduction of dogwood — and there are also azaleas, rhododendrons, laurel and others—Washington is very favorably situated so far as climate and habitat go to set an example for other sections of the country to follow. — *Harvey M. Watts*, Philadelphia, Pennsylvania.

FIR BALSAM FOR CHRISTMAS

SIR: I noticed a question in the December issue of *AMERICAN FORESTS* (page 570) asking how to prevent needles falling from cut Christmas trees. The reply was to keep them in the cold, or set them in a tub of moist sand, etc.

While this is correct, further and more desirable information would have been to use a fir balsam for a Christmas tree. In appearance, as you no doubt know, the fir balsam is so much like the ordinary spruce that many cannot tell them apart. But its needles do not drop off. Furthermore, it is especially desirable for sprays, as it not only holds its needles but has a delightful fragrance.—*J. F. B. Bogardus*, Goffstown, New Hampshire.

AN ALASKA SCHOOL SPEAKS

SIR: We appreciate *AMERICAN FORESTS*. It interests all from the first grade to high school. Its articles and pictures are very interesting.

I like the November issue because it told about deer and game. It is a shame how deer and other game are killed by cars and forest fires, and we hope this may be prevented.

The magazine is very educational. It taught us, among other educational things, that they make clothes out of wood in Germany.—*Richard Eliason*, Port Alexander School, Port Alexander, Alaska.

ON PULPWOOD PLANTING

SIR: I am wondering why the Forest Service does not go into the question of pulpwood planting more intensively. It seems rather far fetched that small trees designed for pulpwood and paper making should be put in a class with trees that are mature enough to put into sawlogs.

Also, I have information that the turpentine question was definitely decided as not coming under the Wage and Hour Act. Why should turpentine and rosin taken from a tree and converted into a great many uses throughout the United States be any more exempt under the Act than small trees put into pulpwood?

As I understand it, the administrator for the Wage and Hour Act has virtually full power under the law, and I feel that the Forest Service might approach him and give him a fuller understanding of the problem. I might also mention that our sawmill operations will be discontinued by the end of next year. Our timber will be exhausted by that time and our operations will be mainly planting seedlings for pulpwood purposes, either for our own mill or for sale to other mills.—*R. M. Hallowell*, Industrial Lumber Company, Inc., Elizabeth, Louisiana.

GRADE Z BRAINS

SIR: Grade Z brains build billboards. How long are we going to let Z-men ruin our beautiful countryside? — *Rives Matthews*, Hastings-on-Hudson, New York.

MISTLETOE IN MEXICO

SIR: In the December number there appears an article by Genevieve Monsch entitled, "The Story of Mistletoe." In the course of this it is stated that in England mistletoe is rarely found on oak trees. Thus I thought it might be of interest to you to know that on the Mexican plateau, at least around here, the parasite is rarely found on other than oak trees. There are at least two very different kinds, one called the American, and another, that is rather rare, which has pink berries instead of the white or pearl colored. The latter I recently found growing on a madroña tree and besides the pink berries a distinguishing feature the leaves are short spike shaped instead of the ordinary leaf.—*Spencer Nye Cook*, Fresnillo, Zacatecas, Mexico.

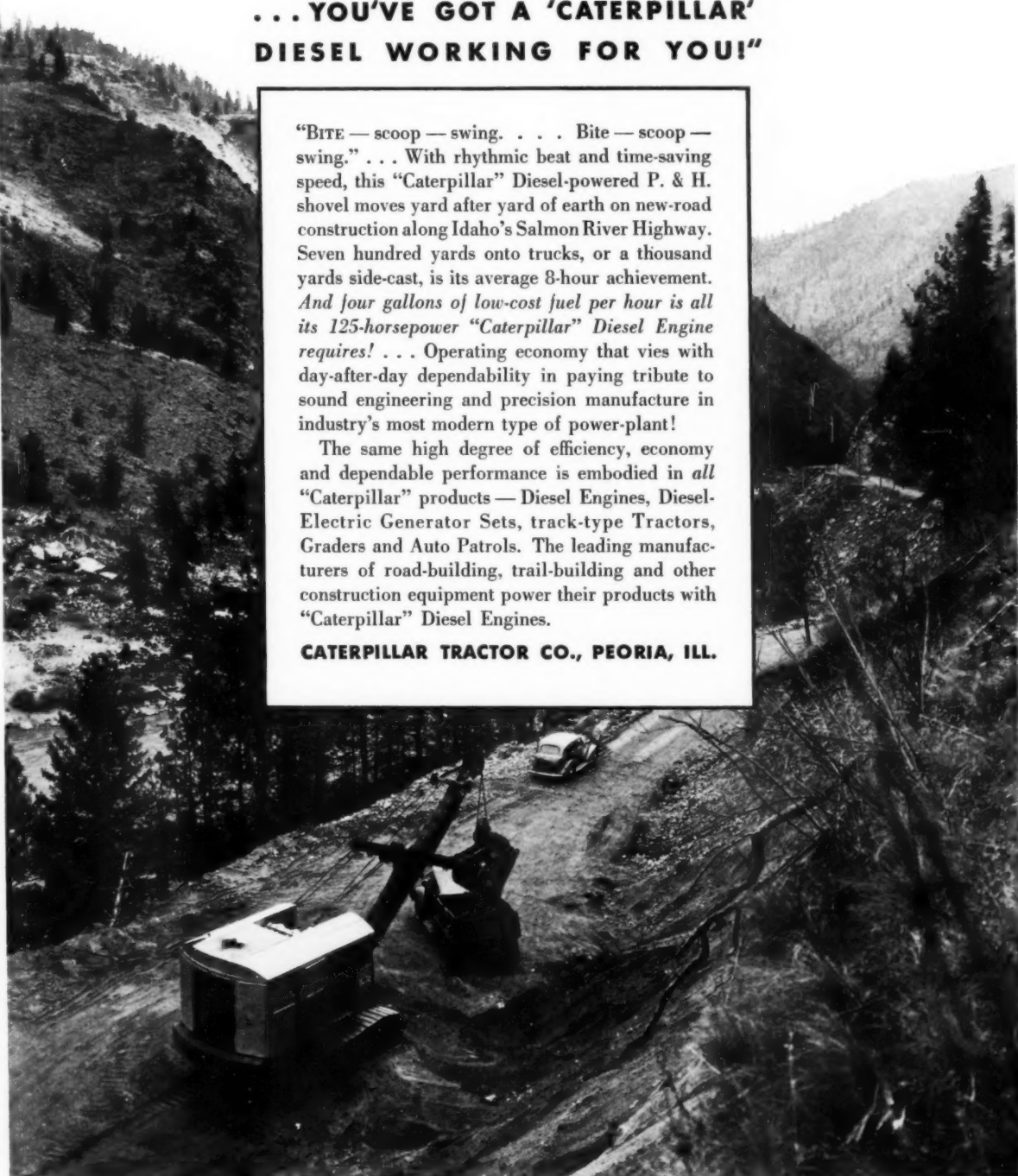
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CHARLES LATHROP PACK
President, The American Forestry Association,
1916-1922

■ Charles Lathrop Pack, 14th president of the Association, followed Dr. Henry Sturgis Drinker in office. He was elected in 1916 and served seven terms,—through the year 1922. He saw the organization through some of the stormiest and most critical days of its whole career, when its work was buoyed up and carried forward largely through the force and inspiration of his enthusiastic personality and his more than generous financial support. He originated, organized and carried on, as the war work of the Association, the National War Garden Commission for home food production,—calling on all Americans to join the war-garden army and so lessen the drain on the country's food supplies needed abroad. Specialists in food production and preservation were retained and a tremendous campaign of educational publicity

OUR PRESIDENTS

carried on, resulting in the planting of over five million gardens and products valued at \$525,000,000.

Mr. Pack's interest in forest restoration was worldwide, as proven by his gift in 1920, as president of the Association, of millions of American forest tree seeds to heal the battle-torn fields of Europe. And later, on the anniversary of our entering the war—April 6, 1922—he presented one hundred million Douglas fir seeds to Great Britain and France to further rehabilitate the forests whose wood had furnished one of the economic sinews of war. For this work Mr. Pack was honored at home and with decorations inspired by the gratitude of the rulers of leading nations abroad.

Born in Lexington, Michigan, on May 7, 1857—lumberman son of a lumberman father—young Pack studied forest conditions in Germany, and later, on his return to America, explored forest regions of Canada, the Northwest and the South. Out of his experience grew his lifelong interest in forestry and its problems in America, to which he gave an endless zeal as well as a fortune.

A leader in many and widely varying fields, few names were better known than that of Charles Lathrop Pack, because of the extent of his generosity in forwarding public education. Aside from his work as president of The American Forestry Association, the National Conservation Congress and later of the American Nature Association, he made specific gifts to Cornell, to the Universities of Michigan, Washington and Yale, and he established the Charles Lathrop Pack Forestry Trust of one million dollars, the income from which is used, under the direction of a Board, to support a wide range of educational enterprises. His death on June 14, 1937, ended not only a colorful career in the public service but the life of a man widely loved for his warm sympathies.

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The lure of growing Christmas trees undoubtedly gripped many a breast during the holidays when millions of shapely evergreens changed hands at fancy prices in towns and cities throughout the country. Here it seems should be a business that opens a road to wealth.

But all that glitters on Christmas Eve is not gold, according to H. R. Cox, a Christmas tree grower of New Jersey, whose operations were described in the last number of *AMERICAN FORESTS*. Instead of a road flanked with gold and spangles, the way of the Christmas tree grower is one of hazards. First comes the elusive rabbit which seems to delight in nipping off the newly planted seedlings just for the fun of it. Then come the grubs, particularly those of the June beetle, to attack the young trees left by the rabbits. On the heels of the grubs come the gall aphids which may restrict the growth of the tree and mar its beauty. And some of the trees which escape these animals, Mr. Batchelor has learned from experience, just naturally curl up and die for no reason at all.

Of course, there is always the danger from fire and from theft. "Nothing the farmer owns these days," observes Mr. Cox, "seems to be safe from human enemies." Lastly, Christmas trees which sell in the cities for \$1.00 to \$2.00 may each return the grower only twenty-five to fifty cents apiece. So don't let the one bright day in the life of the Christmas tree blind you to the many dark and hazardous days in the life of the Christmas tree grower.

* * * * *

The year 1938 recorded 4,581 new members of the Association. Of the number, twenty-three became Life Members at \$100 and two Patron Members at \$1,000. The new Patron Members are Miss Miriam D. Walker, of Connecticut, and Mr. W. R. Coe, of New York.

* * * * *

The Federation of Western Outdoor Clubs, composed of twenty-five organizations devoted to hiking, mountain climbing and other forms of outdoor recreation, has added its voice to the all too weak public demand for modernizing the mining laws as they apply to the national forests. Passed in 1872, the mining laws are as out of step with present times and conditions as a miner's burro on Market Street, San Francisco.

As pointed out in *AMERICAN FORESTS* some years ago, they are being made use of today by outdoor racketeers who see an opportunity to hold up the public in the use of recreational lands in the national forests. This is easily and legally done. Since 1872, any one making a mineral discovery on public lands, including national forests, has had the right to locate one or more claims and to hold them as long as \$100 was spent annually for mineral development. During the war, Congress waived the \$100 requirement so that today unscrupulous locators may hold without cost to themselves public lands needed within national forests for roads and trails, public camp sites and other key recreational uses.

Recent efforts to get Congress to restore the requirement that \$100 a year must be spent in developing unpatented claims have been without success. The reason seems to be that given by the Senator who said that although he was against the continued exemption, he supported it because he was importuned by more people who wanted it continued. It is to be hoped that the Federation of Western Outdoor Clubs with its large memberships of people interested in the legitimate use of public lands for recreation may serve to tip the vocal scales the other way.

Orin Foster
Editor.



A MAGNIFICENT STAND OF VIRGIN BEECH,
SHOWING THE CAPACITY OF THE APPALA-
CHIAN AREA FOR HARDWOOD PRODUCTION

Photographs by the
United States Forest Service

NORTH CAROLINA LOOKS AHEAD IN FOREST TAXATION

By J. G. K. McCLURE, President
The American Forestry Association

LESS than a decade ago North Carolina startled her sister states—and perhaps herself somewhat—by adopting major innovations in the organization of State and local government relationships. Subsequently she has been justly acclaimed for her boldness in introducing State financing of schools and highways. Today she is considering a forward step of a different type, which if adopted will make her a pioneer in another sector of the fiscal field—that of forest taxation.

Few states have the topographic variety and climatic range that are found within the boundaries of the Tarheel State. Time was when virgin forest covered its length and breadth, from the mist-covered peaks of the Smokies to the sun-bathed marshes of the tidewater. But many decades have passed since the ax and the saw and the torch came to clear the land for the plough. The original forest made an immeasurable contribution to the building of a great civilization. But we chopped and sawed too widely—and not wisely. We accepted the free gifts of nature, without providing adequately for their succession.

Nature was not easily discouraged, however. In place of the century-old monarchs she gave us sturdy second-growth trees, straight and tall and vigorous—yet not the equal of their forebears. But they grew apace, and in time reached sufficient size to warrant renewed attacks with the ax and the saw. Thus the cycle was repeated—cutting and reseedling and growth and cutting. But the end of each cycle found the forest lands in poorer condition than at the beginning. Valuable species were replaced by scrub growth and brush. Hillsides were cleared of trees and cultivated for a few years, then abandoned to the forces of erosion, to become and remain open sores of

rocky waste. Portable mills came in to slaughter the promising stems large enough to make cross ties. A further touch of havoc was created by the chestnut blight, which left the mountainsides dotted with gaunt towering monuments to its power of destruction.

Such was the picture early in the present century. The importance of the forest as a source of income to the people of the State was declining steadily. Industries dependent upon the forests as a source of raw materials were shrinking in number and in value of products. Farm woodlots were generally in run-down condition. In some sections of the Coastal Plain, planters were being forced to abandon the cultivation of tobacco because of the exhaustion of local supplies of fuelwood required in the curing process. Fires and overgrazing were contributing annually to the deterioration of both soil and forest.

The increasingly critical nature of the situation, however, served as a call to action. Attacks on the problem were made on several fronts, feeble at first but soon to gather momentum. A division of forestry was organized within the State Government, and systematic fire protection was instituted. State and national for-



A thrifty stand of young loblolly pine, ready for selective cutting

ests were established, to serve as practical demonstrations of the proper treatment of abused and depleted timberlands. Cooperative extension work in forestry was started with farmers. The North Carolina Forestry Association was founded, dedicated to the promotion of all worthwhile conservation activities. Aroused by the imminence of danger, the State girded to meet the challenge.

It had long been the claim of forest owners that the burden of property taxation had rested on them with undue severity. These complaints notwithstanding, North Carolina has thus far not enacted any special forest tax law. This slowness to act may prove to be something of a blessing, however, for it means that the North Carolina statute books are not cluttered with experimental forest tax legislation of the type usually favored in the past which other states have found inadequate and disappointing.

The adoption of the Classification Amendment to the State constitution opened the door to a constructive approach to the forest tax problem. In its 1937 Session, the North Carolina Legislature authorized the establishment of the Classification Amendment Commission. In accordance with its legislative mandate, the Commission set out to investigate opportunities for the classification and differential taxation of several types of property, one of which was forest property. To facilitate its investigation of this complex problem, the Commission obtained the assistance of the Forest Taxation Inquiry of the United States Forest Service in a cooperative study which was completed only a few months ago. The findings of this study, together with recommendations for a tax program consistent with these findings, are incorporated in a report from the Inquiry to the Commission, which is included in the Commission's final report, released on November 15 last.

Following are the highlights of the findings of this cooperative study. Forest property suffers both from the inherent nature of the unmodified property tax and from the defective manner in which the tax is administered. Since so large a portion of the forest lands of North Carolina are understocked or bear inferior species, a prolonged period of rehabilitation is necessary to restore them to full productivity, and so to organize them that they may produce a sustained annual yield. In many cases, only scanty income can be obtained from the forest during such a building up period. Therefore the typical forest enterprise represents a deferred-yield investment, and it is upon property and investments of this type that the unmodified *ad valorem* tax falls with undue severity.

A common defect in assessment procedure, no less prevalent in North Carolina than elsewhere, is the tendency to over-assess any and all property of low value. Forest land suffers with particular severity from this practice, since characteristically it is capable of yielding a much smaller annual return per acre than is arable land. Assessments generally fail to reflect actual variations in market value and income yielding capacity of the two types of land, however, and forest land suffers accordingly.

It was found that the prevailing assessment practices in North Carolina commonly result in overtaxation of an even-aged forest in certain stages of its development, and in under-taxation at other stages. Overtaxation is particularly apparent, unfortunately, at two points in the growth cycle that are crucial with respect to the management policies of owners. The first point is coincident with a major cutting operation, when the prospect of continuing overassessment of his cutover land may discourage the owner from making the provisions

necessary to regenerate the forest. The second point is when the young trees are intermediate in size between pulpwood and small saw-timber. Prior to this stage of development the young growth is unlikely to have been listed on the assessment roll, but the attainment of merchantable status generally causes the assessor to "discover" the young timber and to assess it at approximately full present value. This results in a sharp increase in the owner's tax bill, and may tempt him either to sell or clear-cut the entire stand at once, rather than to hold it for full maturity in the face of the added tax burden.

Even though the total taxes levied on a forest property during a complete rotation may not be greater than they would be if the tax were property administered, the net effects of maladministration, coming to bear on the forest at these critical stages, tend to retard and discourage the adoption of management policies calculated to rehabilitate the forest lands of the State and bring them to maximum productivity.

The report presents a definite program of action calculated to overcome these tax handicaps to forestry. It recommends a special forest tax law embodying the principle of classification. This measure would embody the main features of the "differential timber tax," one of the plans previously proposed by the United States Forest Service for eliminating the excess burden placed on deferred-yield forests by the unmodified property tax. It would call for separate assessment and segregation on the tax rolls of land values and timber values. Both land and timber would be appraised at full value, but the "assessed value" of timber on which the tax rate is imposed would be only one-half of the full appraised value. In other words, the principle of differential classification would be introduced, and preferential treatment given to timber by reducing its assessed value to fifty per cent of its full value. It is shown that this method of taxing timber could be introduced in North Carolina with little if any loss of revenue to the counties and with virtually no disturbance to local budgets.

It is contended in the report that there is no single royal road to administrative reform of the property tax. It is strongly urged, however, that the State give serious and immediate consideration to the development of reform measures that are in harmony with the existing structure of government and which conserve the better features of local administrative tradition. Several suggestions for reform are offered, but no definite and detailed program is recommended. It is insisted, however, that the introduction of the differential timber tax would necessarily bring about a substantial improvement in assessment practices.

The salutary effects of the differential timber tax may be portrayed by considering the case of Frank Smith. He has recently inherited the old home place, 400 acres in area, lying in the foothills east of Asheville. Only about fifty acres are adapted to continuing cultivation. Abortive attempts at cultivation of a much larger area were made by Frank's father and grandfather, on some acres many years ago and on others only recently. Shortly after the end of each attempt, the land was re-clothed with some form of tree growth. But Frank's forefathers never appreciated the potential worth of the forested tracts, and hence took no steps to cooperate with nature in developing their economic possibilities. In consequence, the present forest growth is ragged and uneven as to species, age, and condition. It is badly in need of silvicultural measures such as thinning, removal of inferior and defective trees, and planting of a few

barren spots. Frank is in his early thirties, is blessed with considerable natural intelligence, and has the benefit of two years' training at State College. He would like to stay with the home farm, rather than to seek a place in the overerowed ranks of trade and industry. He is aware of the mistakes made in the past in the handling of the property. He also realizes that the possibilities of income from the fifty acres of cultivatable land are strictly limited. Therefore, if he is to remain on the place and obtain a decent livelihood from it for himself and his family, the 350 acres of forest land must be made to contribute substantially to the family income. This cannot be done overnight, of course; hence the question is—will it be wise for him to risk the commitments to the future that must be made if he embarks upon a program of restoring his forest land and managing it for maximum returns?

The owner of a forest is always confronted with inevitable physical hazards, such as fire, theft, and damage by wind, insects, and disease. To these must be added certain financial risks, one of which is uncertainty with respect to the tax burden. On the other hand, expanding markets for wood products, such as pulpwood, promise a more regular flow of income. Frank has weighed these contingencies, and has decided that the opportunity of gain from the practice of forestry is great enough to offset the dangers of loss and failure.

He can minimize the physical hazards by providing adequate fire protection and by introducing salutary silvicultural practices. Market prices he cannot control, of course. But by enacting the new forest tax law, the State would give him assurance that his annual tax bill would be reasonably stable and not unduly burdensome. His forest land would be assessed at a figure reflecting its relatively poor quality and low income-yielding capacity. The initial assessment of his timber would be small, in line with its present market value, and the millage levy would be made on but fifty per cent of its appraised value. As the timber increases in volume, quality and value, it would be assessed correspondingly

FEBRUARY, 1939



Longleaf pine reproduction in the Tidewater area. Will its fate be early conversion into pulpwood—or management for sustained yield?

higher, but the fifty per cent assessment differential affords assurance that the taxes will not become confiscatory.

Taxation is but one—and intrinsically not the most important—of the many phases of Frank's problem, but it gives him much concern. The feeling of confidence and assurance that enactment of the new forest tax law would impart might be the deciding factor in encouraging him to stay with the land and undertake the practice of forestry.

Frank Smith's land is representative of a considerable part of the forest area of North Carolina. It is reasonable to suppose that many owners are facing the same problem, making the same calculations.

The Classification Amendment Commission has urged that this program of forest (Continuing on page 87)



Small, inefficient, temporary mills such as this have contributed largely to the ragged and understocked condition of the mountain forests

DEATH ON MURDERERS' CREEK

• By BLYE ENGLIS

• Photographs by the Forest Service

"DON'T look now, but there goes the 'Dean,' wearing a mule deer on the hood of his car—a doe that he shot on Murderers' Creek!"

However, the Dean's prowess as a bold hunter in the wilds of eastern Oregon would have been more impressive had not deer been so plentiful that he sighted his kill almost before he had time to set his little red hat at a jaunty angle. Neither had the Dean broken the bag limit of one buck per hunter; he had just returned from the Murderers' Creek winter range of mule deer where they are so numerous and the food supply so exhausted that a special hunting season was created, allowing a take of one antlerless deer from November 20

to December 10. In 1929 the Murderers' Creek Game Refuge was established in the mistaken belief that the deer needed protection. In 1935 the refuge was officially dissolved and the deer officially notified, but they continued to crowd into the area. Now, due to serious food shortage, they need curtailment. Every winter, from October to the middle of January, they stubbornly rejected and passed by other suitable winter range on their way to desolate Murderers' Creek. This produced so grave a food problem that after much pressure from the federal Forest Service, committees were formed to investigate the situation and make reports.

It has been demonstrated beyond question that committees often delay concerted action. Although the Forest Service reported, the Biological Survey reported, the sportsmen reported, and the ranchmen reported, nature remained unimpressed. The deer continued to increase and to concentrate in the Murderers' Creek basin.

Several solutions were submitted but none seemed entirely plausible. That which pleased the cattlemen, the game commission found unsatisfactory; what satisfied the wildlife federation, the sportsmen frowned on. And still the herd increased, despite the fact that by now death and starvation had taken over the Murderers' Creek region. In one section 12,000 deer were trying to exist where even 6,000 would have gone hungry; the carrying capacity of another was less than 600, but 1,000 deer were present. As a whole, in the Malheur National Forest, including Murderers' Creek, a conservative count placed 38,000 deer where only 26,000 should have been wintering.

It is a deplorable fact that the Oregon State Game Commission has little actual power and is so dependent upon slow-moving legislature that at times it is literally and spiritually as far removed from an emergency in Oregon wildlife as an Eskimo eating frozen fish atop his frozen igloo. Hence the regular hunting season, giving but one mule buck deer to the hunter, dragged on until finally, in 1938, all dissenting forces got together and the commission put over the one antlerless deer special season in addition to the regular season. Back of this special game season were those interested vitally in the welfare of the deer. They were people sufficiently interested to take the long arduous trip to Murderers' Creek for first-hand information, people appalled at the condition of



View of a juniper on the Malheur Forest in Oregon, trimmed by deer to a height of about seven feet

the winter range and the mule deer in the region. They were people who, out of sheer pity, declared that a special hunting season on antlerless deer was the only humane solution if Oregon was not to duplicate the catastrophe that overtook the deer in the Kaibab National Forest, in Arizona.

When this special season was suggested a howl arose from the stay-at-homes and maudlin wildlife lovers who were horrified at a civilization that would permit the shooting of does. Editorials calculated to make the Dean and others feel like poltroons and degenerates appeared; pungent articles implied that any man that would shoot a doe would creep into chapel and take a pot shot at a nun in silent adoration.

The State Game Commission and the others anticipated this criticism, but they knew only too well that should a severe winter kill off the herd even greater criticism would pour forth from the objectionists. Although it was pointed out to them that a doe eats almost as much as a buck and produces the unwanted increase in the herd, they continued to beat their breasts in anguish and to cling to their entrenched



Winter range on Murderers' Creek shows heavily browsed bitterbrush shrub

and worn-out traditions. But the Game Commission stood its ground and the special season stood with it. Judgment and reason triumphed over ignorance.

In winter these eastern Oregon mule deer subsist principally on bitterbrush, mountain mahogany and juniper. However, the Murderers' Creek bitterbrush has been browsed to mere stubs in the ground. It is a sturdy plant that gathers itself together after the heavy deer concentration period, but before it can put forth any appreciable new growth the deer are back again. The mountain mahogany has suffered equally, while the juniper is

high-skirted by the larger bucks to more than six feet from the ground. What semblance of food and nourishment can the young fawn find when the bitterbrush, mahogany and juniper were already seriously overbrowsed? This malnutrition results in puny fawns that grow into weakling bucks fully forty pounds under normal weight.

Part of the Murderers' Creek region is in the Malheur National Forest but the winter problem area is chiefly on privately owned land. If starvation is the menace to these deer they, (Continuing on page 87)



Two dead mule deer fawns under a high-skirted juniper tree—innocent victims of starvation on Murderers' Creek



THE MAGIC OF THE CYPRESS SWAMP

By R. K. WINTERS

Moss-hung, mystic beauty in the heart of the cypress swamp

Devereux Butcher

SINCE early colonial days, the cypress swamps of the Southland have captured the imagination of men. The writings of explorers and early travelers are filled with expressions of awe and admiration inspired by the venerable trees "kneed" and buttressed in the black water, their limbs adangle with grayish waving moss. Audubon, who watched the small water animals as they paddled silently around the knees of the tall gray-green cypresses hung with tangled nets of Spanish moss, thought these knees looked like great sugar-loaves thrust up through the dark waters.

More than 150 years ago, William Bartram wrote in his diary of the cypress: "Its majestic stature is surprising; and on approaching it, we are struck with a kind of awe, at beholding the stateliness of the trunk, lifting its cumbersome top toward the skies. . . . From this place [the swelled buttress], the tree, as it were, takes another beginning, forming a grand straight column eighty or ninety feet high, when it divides every way around into an extensive flat horizontal top, like an umbrella, where eagles have their secure nests, and cranes and storks their temporary resting-places; and what adds to the magnificence of their appearance is

the streamers of long moss that hang from the lofty limbs and float in the winds."

William Darby, a traveler of the early 19th Century, writes of a cypress swamp: "To have an idea of the dead silence, the awful lonesomeness, and dreary aspect of this region, it is necessary to visit the spot. Animated nature is banished; scarce a bird flits to enliven the scenery. Natural beauty is not wanting, the varied windings and intricate bendings of the lakes, relieve the sameness, whilst the rich green of the luxuriant growth of forest trees, the long line of woods melting into the distant sky, the multifarious tints of the willow, cotton, and other fluviatic trees, rendered venerable by the long train of waving moss amuse the fancy. The imagination fleets back toward the birth of nature, when a new creation started from the deep, with all the freshness of mundane youth."

To these travelers and to all who behold the sombre vistas of a cypress swamp, there is an allure, a tickling of the fancy, a stimulus to the imagination. Even the modern scene, in which the "cajun" fisherman of the Louisiana swamps in his pirogue hollowed from a cypress tree, paddle poised and dripping, glides silently

and smoothly among the sombre shadows, equally provokes the fancy. From its home in an old burned-out log, the cotton-mouth moceasin swims in a zig-zag fashion, head a few inches out of the water and tongue flicking. Above, the woodpecker drums imperiously on his hollow tree. Paddling leisurely along in a ripple-washed pirouge through the peace and tranquillity of such a scene is an experience long to be remembered. One seems to float back through the centuries to prehistoric times,—when even the sight of a dinosaur would scarcely be surprising.

Many trees now present in the southern swamps were old when Columbus discovered America. Some authorities even maintain that the Mexican cypress, a near relative of our southern species, boasts the oldest known living tree. The great cypress in the village of Santa Maria del Tule, in southern Mexico, has a diameter above the swollen and buttressed base of more than forty-one feet and an estimated age of four thousand years. In the United States, cypress sometimes reaches a diameter of fourteen feet and an estimated age of three thousand years or more.

In addition to being long-lived as individuals, the cypress family has an ancient lineage that goes far back into geologic times. In the days when primitive mammals were replacing the last dinosaurs, authorities tell us the cypress line was already established in many parts of the northern hemisphere. The leafy twigs, cone scales, and seeds that are frequently found in the rocks formed during this and later periods, record that members of the cypress family once lived in nearly all parts of North America, Europe, and northern Asia. In fact, this family was one of the important contributors to the swamp deposits that formed the brown coal so extensively utilized in Europe.

FEBRUARY, 1939



Cypress Gardens

Winter rains fill the swamps and mirror the lights and shadows

Once widely distributed, the cypress family is now fairly localized in its distribution. In our country it is practically confined to the Coastal Plain along the Atlantic Ocean and Gulf of Mexico and to the alluvial bottom lands of the Mississippi River as far north as southern Illinois. Even now the bald cypress—the chief American representative—appears to be perceptibly retreating southward from the northern limit of its range in southern Delaware and Maryland. Traces of trees are found there where live trees no longer exist, although they appear to thrive where planted.

Not only does the growing cypress capture the imagination, but almost every association with the tree is unusual. It is one of the few trees likely to have a swollen and buttressed base. Many have asked,

the absence of air, they were found to be unbuttressed and of normal size.

The knees, those conically uprising extensions of the roots that appear for no apparent or well-explained reason, are found on no other native tree species. John Bartram, writing in the late 18th Century, reports that the large knees, which are nearly always hollow, “serve very well for bee-hives.” Nowadays, the cut and inverted hollow knees are more likely to be used as attractive plant baskets for rustic porches.

The baffling problem of logging the cypress swamps has led to many an ingenious device. From earliest Colonial times till about 1890 it was common practice to float cypress logs to the sawmill. To guarantee that the logs would be light enough to float, the stand-



Into the woods of stunted moss-hung cypress floats a carpet of water hyacinth

Forest Service

“What causes the cypress to develop this buttressed trunk?” Although the exact cause is not known definitely, recent studies indicate that the swelling is confined to that portion of the trunk that is exposed to periodic wetting. The portions of the stem wet most frequently by lapping water swell the most. This was demonstrated in Reelfoot Lake, which was formed in 1811-12 when a considerable area of land in northwestern Tennessee sank several feet as the result of an earthquake and was promptly filled with water by the Mississippi River. The cypress trees in the more deeply inundated areas died, while the others over a period of more than a hundred years developed buttresses in the zone where the annually rising and falling water moistened the upper trunk. In 1929, phenomenally low water uncovered the cypress trunks below the normal water level, and where the trunks had for more than one hundred years been constantly wet in

ing trees were girdled about a year before felling. Thus the trees died standing, while the leaves, drawing moisture from the trunk, lightened its weight. Timber fallers have employed various means to fell the heavily buttressed trunks. In practically all cases the cut was made above the buttress. In dry weather the fallers cut two notches four to seven feet above ground and on opposite sides of the trunk. Into each of these they inserted a short “spring board” on which they stood while felling the tree. Working in deep swamps in wet weather they sometimes worked from pirogues, one pirogue to each faller. Technique depended upon local conditions and the preference of the individuals. Some paddled their pirogues to the tree to be felled, where each sank an ax into the trunk at a point convenient to serve as a foothold during the cutting. Then standing with one foot on the axes and the other in the pirogues they made the undercut and felled

the tree, moving the ax foothold when necessary for efficient working. As the tree toppled, each faller, observing the direction of the fall, gave his pirogue a push to safety before the trunk landed with a splash in the water.

In the early days of primitive logging, the felling was usually done in the dry months of late summer and early fall. Paths were cleared through the



seasons after all preparations had been made and the timber cut, the high water did not reach the given area. The timber then had to be kept over till the following year. If, for any reason, the high water did not reach the timber the second and subsequent years, or if the main seat of the logging operation moved to a distant point, the cut logs stayed



The moss picker approaches his simple home by the black bayou waters. Note the fences, especially prepared for curing the moss

Louisiana Department of Conservation

woods to the nearest natural waterway, and in periods of high water these paths became the "float roads" or forest canals down which the logs were floated. In some

on the ground, where they were known locally as "choctaws." Because of the resistance of cypress heartwood to decay these "choctaws" remained sound for many

years. In fact, as much as one-fifth of the cut of some saw-mills now operating is from "choctaws" left in the woods fifty to seventy years ago and only recently made economically available through changes in logging conditions.

For with the coming of machine-logging methods during the last fifty years, the old system was changed and new methods were put into operation. Under certain conditions railroads and power skidders were used; in others, "pull boats," i.e., large barges carrying steam donkey engines, were floated into the swamp forest. Where natural waterways did not suffice, artificial channels were dug by steam shovels also mounted on barges. Thus equipped, the steam monsters cut their way into every nook and cranny of the forest. At strategic points the "pull boat" anchored itself with cables to trees or stumps, put out one to four thousand feet of cable, and began dragging in the logs with such a snorting and crashing of underbrush as the sombre cypress swamp had never before experienced. At the "pull boat," one end of each log was bored through with a two and one-half-inch auger and eight to ten logs were bound together with a chain, making a crib. Several cribs were then combined in tandem fashion and towed with tugs down the canal to the main waterway and thence to the mill.

From one sitting the "pull boat" would put out its cable line successively in all directions like radii of a circle, and aerial photographs of logged swamp areas taken a decade or more after logging still show plainly the "pull-boat" sittings, each with its radiating drag paths extending in all directions.

One of the most glamorous features of some of the present-day cypress swamps is the dense cover of water hyacinths over most of the water surface. This floating plant during spring and early summer bears showy lavender flower clusters that bring a dash of brilliance into the otherwise austere picture. Curiously enough this plant, a native of Brazil, was accidentally brought into this country and set free in southern waters, where it has multiplied and extended its range until, in some localities, it is a menace to inland-waterway navigation. Boat propellers become entangled in the floating vegetation, and water progress is as effectively stopped as if the boat were caught in the midst of the famed Sargasso Sea. Many devices have been used to free the waterways of these obstructions, ranging from spreading plant poisons on the water to grinding the plants up in great choppers. These devices are all to no avail, however, because the beautiful transgressor seems to multiply faster than the ingenuity of man can destroy it.

Although the field crews of the Forest Survey upon more than one occasion, when estimating the stand of timber in the Grand Lake Swamp in southern Louisiana, may have cursed the pesky weed right soundly, on many another occasion they were thankful for its presence. These woodsmen, who lived on a house-boat and were taken to and from work in boats, floundered steadily through mud and water along a compass line mile after soggy mile. When they came upon an icy bayou that had to be crossed, they were fortunate to find it choked with water hyacinths, for they knew that in place of a shivery bath they could take a five-foot stick in each hand, lay it flat upon the plants and on all fours crawl safely across the deep water on a carpet of hyacinths.

The hyacinth and the tupelo gum, common associates of cypress in southern swamplands, sometimes give rise to a novel swamp industry. Honey bees working on the flowers of these two species produce honey of a very

fine quality. In the extensive Grand Lake Swamp, one enterprising bee keeper has several hundred hives distributed in groups of twenty or more and mounted on platforms along the bayous well above the reach of high water. Living on a houseboat, he periodically makes the rounds of his hives in a motor boat which during the blooming season gradually fills with honey.

Spanish moss, another of the by-products of the swamp, produces rest for man's body, if not for his soul. Tufts of this weirdly waving moss, for many years called "Spanish beard" because of its resemblance to the beards of the Spanish explorers, blow from the trees in times of storm. These, along with other readily accessible bunches, are gathered by solitary "moss pickers" who flounder through the swamp, load their gleanings into flat-bottomed boats, and in the evening twilight row slowly and silently homeward with the pile of hard-earned moss beside them. Here the moss is cured in preparation for the market. The fresh moss is first piled in compact piles, where the soft, grey outer coating is partially decomposed. Then it is hung on fences, where subsequent rains sluff away this outer covering and leave a firm, wiry, black inner fibre, which after cleaning in a moss gin is widely used as a cheap filler of mattresses and stuffed furniture.

The wood of the ancient cypress, mellowed in the deep southern swamps, has also through the years played a varied and important role in the lives of men. From the time that, as a newborn babe he was tenderly laid in the home-made cypress cradle until, when his course was run, he was again tenderly laid in the hastily constructed cypress coffin, the early settler depended upon the wood of this tree for many of the necessities of life. From it he fashioned his hewn pirogue and the elevated wooden cistern from which he drew his drinking water. The hand-split cypress shingles of a roof supported by hewn cypress beams sheltered him. Oftentimes his entire house was made with cypress.

These were the necessities of life on which his body thrived, but the pioneer also wrought objects of beauty created first in his imagination on which thrived his soul. Many of these ornaments were made from the soft-textured, easily carved wood of the veterans of the deep cypress swamps. Almost always the austere simple or the ornately carved woodwork in the homes of wealth were of cypress.

In my imagination I like to picture a simple, dignified Louisiana plantation home facing a garden, and across the field, the black waters of a cypress slough. On the veranda there sits in the slanting rays of the late summer sun the aged grandfather, gazing across the garden at the cypress trees, bearded and venerable like himself. As the gently moving festoons of Spanish moss cast distorted shadows on the quiet, black waters below, his mind turns to the alternately turbulent and peaceful past—a long, long past when there was no man and the earth was young—to the time when huge dinosaurs in place of bull-frogs thrashed and muddled the water beneath the cypress trees. With his mind's eye he also sees the majestic cypress giants coming down through the centuries, while their early and ephemeral plant and animal associates have passed one by one from the scene. Today, he sees the cypress still standing, still enduring, and still venerable. And in his fancy he turns the wheel of time ahead to future ages and finds the cypress race still vigorous on the earth, perhaps long after the last of the family of men have passed from off its face. Thus the sun sets and the twilight deepens, only to intensify the magic and the mystery of the cypress swamp.

DR. HOFFMAN'S CHERRY TREE

By OTTAMAR HAMELE

IN THE books on our library shelves many famous trees are found. From ancient tomes we learn of the Oracle Oak at Dodona, the Sacred Bo in Ceylon, and the revered fig tree of Romulus. The arboreal reports of Mexico tell us of the Montezuma Cypress at Tule, while in the annals of our own country we find the Washington Elm that spread its graceful boughs at Cambridge.

And from a sober, calf-bound volume of learned legal decisions, rendered by the august Court of Appeals of New York, we trace the interesting story of Dr. Hoffman's cherry tree, which many years ago blossomed and bore fruit near the old Erie Canal, in the village of Port Byron.

In the days of the Civil War William C. Hoffman, an old-fashioned country doctor, relieved the aches and pains of the good people of Port Byron and its environs along the great canal. His house stood at the end of Main Street, and in the yard near the line dividing the doctor's place from that of neighbor Abner A. Armstrong grew a handsome cherry tree. With faithful regularity this tree glorified the Hoffman garden with a cloud of beautiful bloom, and mothered on its boughs great masses of red, delectable fruit. The doctor was quite fond of the tree and pointed it out to visitors with a touch of pride. But some of its truant limbs, regardless of deeds and surveys, reached across the division fence above the soil of Abner Armstrong; and from these spreading branches hangs an engaging tale.

One summer morning in 1864, Dr. Hoffman's sister Sarah, in the quietude of her home by the placid canal, decided to bake a cherry pie. Much of its fruit already had been taken from the doctor's favorite tree, but the boughs that stretched across the division fence still held a goodly supply of luscious, ruby, gastronomic joy.

Using the division fence as a ladder, Sarah reached to the overhanging limbs and started to pick the fruit. While so engaged her neighbor Abner suddenly stepped into the picture and rudely directed her to quit the job. Armstrong contended that the cherries which grew over his land belonged to him, and when Sarah refused to obey his order he shook the fence and tree so that she fell to the ground. As a result of this undignified procedure the doctor's irate

sister sustained various and sundry sprains and contusions.

The lawsuit which followed the fall of Sarah Hoffman was the talk of the town. The doctor had sought a settlement for the abrasions to the body and spirit of his sister, but the smoke of legal battle was perfume to Abner's nostrils, and he refused to pay a penny. Vigorously he insisted that he had but removed a trespasser from his property, and that in so doing he was well within his rights. Eminent counsel were employed and the case came to trial April 13, 1865, in the Cayuga county circuit court.

While the action was brought to secure damages arising from an assault, the case pivoted on the question as to who owned the cherries that blushed from the limbs across the line. The same problem had theretofore been considered by wise and learned judges, but the conclusions of these gentlemen were not entirely harmonious.

In Merrie England a hundred years before the Revolutionary War it had been held by a high court in the case of *Masters vs. Pollie* that where a tree grows in A's close, though the roots grow in B's, yet the body of the tree being in A's soil, the tree belongs to him.

But twenty years later British legal waters were muddied by another opinion from the King's Bench on the same general subject in the case of *Waterman vs. Soper*, in which it was decided that if A plants a tree upon the extremest limits of his land, and the tree extend its root into the land of B, then A and B are tenants in common of the tree; but if all the root grows on the land of A, though the boughs overshadow the land of B, yet the branches follow the root, and the property of the whole is in A.

Then in 1835, in *Lyman vs. Hale*, a case involving fifty cents' worth of Connecticut pears, the Supreme Court of Errors of the Nutmeg State decided that, even though both boughs and roots trespass on a neighbor's property, the entire tree and all its fruit belong to the owner of the land on which the trunk is located.

These and other decisions more or less in conflict were carefully studied by the eminent counsel employed by the wounded Sarah and the belligerent Abner. But the lawyers could not agree and the litigation went merrily forward. Sarah secured a judgment in her favor in
(Continuing on page 94)



As Sarah reached to pick the fruit, the irate farmer rushed from the house

THE NATION'S TIMBER STAND

By **RAYMOND D. GARVER**

Director, Forest Survey

FORESTS come to public and private attention currently because in them are undeveloped possibilities for additional employment and greater returns. But, reliable facts about the resource are still inadequate, hence our thinking and planning fall short.

We examined timber tracts originally to size up the job of clearing the land for food production. Trees were in the way; they seemed inexhaustible until the twentieth century ushered in an alarm of timber scarcity. Gradually the din subsided. Nevertheless forests were being logged heavily. Cut-over land and fire damage were a warning because in their wake were idle mills, stranded communities, and eventually ghost towns. Satisfactory records of forest capital depletion and replenishment by growth were not available. No one knew, for sure, whether this nation had plenty or would soon be in want of timber and other services rendered by the forests.

The facts with which to answer these questions lay hidden and could be obtained only by a field examination of the forest resource situation on a nation-wide basis.

The Forest Survey, authorized by the McSweeney-McNary act of 1928 is for this purpose. It is a comprehensive study covering timber inventory, forest growth and drain, timber requirements, and the value of forests in our social and economic structure.

This undertaking is a public responsibility because it covers all forest land; because the information being obtained is essential to both public and private policies; because of the public interest in forest land regardless of ownership; and because private interests could not undertake such a far-reaching investigation covering both private and public lands on a national or state-wide basis.

The Survey is in progress in the Northwest, Inland Empire, California, Lake States, South, and Appalachian regions. Seasonally up to 200 technical men have been employed. Some 280,000,000 acres, or about one-half of our forest land, has been covered. Nearly three-fourths of the data obtained have been analyzed. Analysis on a nation-wide basis of forest products requirements and trends is about equally complete.

The work is far from finished. First, is the completion of the office work for the extensive area already covered. Second, is the field and office work for an equal area located in California, Southern Rocky Mountains, Montana, Ohio Valley, and the entire Northeast.

Survey results although belated, are becoming available at an especially opportune time. This information is basic to the recent notable development in land-use planning where forest lands are involved, and in measures to provide a livelihood for dependent people. Without these facts it is impossible satisfactorily to guide forestry developments or to correlate forestry with other major types of land use.

Only a few of the significant regional findings can be given for the regions in which the work is completed or

nearly so—the South, the Lake States and the Pacific Northwest. Details are available for the respective regional forest experiment stations.

THE LOWER SOUTH—this includes all of Georgia, Florida, Alabama, Mississippi, Louisiana, the commercial pine belts of Texas and Oklahoma, and about three-fourths of Arkansas—a total land area of some 213,000,000 acres. It is an extremely important region with increasing forest activity, and with vast areas of pine and hardwoods including the important naval stores belt and the Mississippi Delta hardwoods.

Common to the whole territory and to most units, are understocking and paradoxically large aggregate areas of second growth with an encouraging proportion of small trees just under merchantable size. In view of present heavy drain on the stand and only partial use of the productive capacity of the soil, the outstanding need and opportunity is to increase the net growth by building up the growing stock and by reducing the mortality loss which now amounts to twenty to thirty per cent of the net increment.

This region is fully alive to the need of increasing its forest productivity to provide more work and more wealth. With nearly ninety-five per cent of the forest land in private ownership, already heavily used and no large reserve of old growth, is this practicable? Can forests be made the haven for general progress and recovery? What is the situation?

After more than a century of land use, fifty-seven per cent, or 122,000,000 acres remains forest land. About six per cent of the area is old growth, while eighty-six per cent is second growth and partially cut stands, and eight per cent is non-stocked. It is important that seven-eighths of the area is in condition to put on growth. But as compared with the best areas it is only one-quarter to one-half stocked with trees.

Total volume of saw timber when surveyed was 254,500,000,000 board feet. Pine made up 141,500,000,000 feet or fifty-six per cent, and hardwoods 113,000,000,000 feet, or forty-four per cent. Hardwood saw timber occurs in significant quantities on about one-half the area; and surprisingly enough, there is twice as much hardwood volume outside the well-known Mississippi Delta hardwood region as in it. Total growing stock of all trees five inches in diameter and larger equals 77,500,000,000 cubic feet, approximately one-half pine and one-half hardwood.

There is more timber and less non-stocked land than expected which is encouraging. On the darker side is inadequate growing stock, localized over-cutting, and the low average quality of the timber.

Total drain on the saw-timber growing stock in 1936 amounted to about 14,000,000,000 board feet, which is equal to more than one-quarter the total drain for the United States, of which 9,000,000,000 was pine and 5,000,000,000 was hardwoods. The total drain against all

trees five inches in diameter and larger in cubic feet was 3,000,000,000 feet, of which 2,000,000,000 were pine and 1,000,000,000 hardwood and cypress.

For pine and hardwood combined, total net growth for saw timber was 13,000,000,000 board feet; for all trees five inches and larger it was 3,500,000,000 cubic feet.

A comparison of drain and growth for the region shows for saw timber an overcut of 1,000,000,000 board feet; for all trees a surplus of 500,000,000 cubic feet.

Average growth and drain figures for extensive areas are essential to a region-wide picture. To be applicable locally, however, they must be available for smaller tracts and be amplified by additional information on forest conditions including growth and cut by size groups. Differences in growth alone can change the picture remarkably because of wide variations among forest condition classes and even between large areas. To illustrate—in the naval stores region net growth in all trees five inches and larger averages about one-fifth of a cord per acre per year, in the Mississippi Delta hardwoods two-fifths cord, and in the remainder of the lower South one-half cord. Further analysis of drain in relation to the species and quality of timber available for cutting raises a question about the end result if present practice continues. Because this problem is more critical in hardwoods than in pine, I will comment separately on the Mississippi Delta hardwoods. Here about one-third of the total saw timber volume is high grade material, consisting mostly of red gum, red and white oaks and ash, while two-thirds is low grade and includes overcup oak, hickory, pecan, tupelo gum and other miscellaneous hardwoods.

In contrast, about two-thirds of the saw-timber volume removed for commodity purposes is high-grade material and only one-third is low grade. This is practically the reverse of the proportion of these classes of material as they occur in the forest.

One major problem, therefore, here as elsewhere in the hardwoods of the South, is how to utilize fully the "lower two-thirds." A similar problem obtains in softwoods, particularly in the naval stores belt, but currently it is not so pressing because of wider outlets for low-grade pine for common lumber and pulpwood. Good forest practice depends importantly upon the solution of this question.

If cubic-foot growth were increased over a period by fifty per cent through improved management practices and most of this increase could be utilized, it is estimated woods and mill employment when this is accomplished might be increased the equivalent of year-round employment for 250,000 additional workers, which is roughly one-fifth of the total present number of unemployed in this region. If growth were doubled as is claimed possible by good forestry, opportunities for employment could be increased considerably beyond this figure.

With the decreasing trend in cotton acreage, forest

land must play an increasing part in taking care of the people by being put in condition to grow more timber. One direct way to build up growing stock and thereby increase increment is to restrict the cut to less volume than growth. But this is considered impracticable in many cases because timber-using plants would either have to close down or curtail production, which would result in more unemployment and in further embarrassment to an already hard-pressed South. A workable solution may lie in reduction of mortality losses by every means possible, particularly improved fire protection and salvage operations, in greater efforts to develop new uses for secondary species, and in developing manufacturing methods that will make possible closer economic utilization of the preferred species. Such a plan holds possibilities and should result in increasing forest capital and in decreasing unemployment.

Another means for increasing employment and revenue is greater refinement of the forest products before shipment to other regions. This is in line with the South's desire for an industrial economy and should result in a desirable shift of workers from extractive industries

such as agriculture and lumber production to the refining and distributing industries.

Satisfactory disposal of an increasing amount of forest products is essential to the success of these proposals and by and large the prospects look encouraging. The South is an exporting region and will continue to be. About one-half the cut is consumed locally and one-half is shipped out to a wide-spread territory. It can rely on both inside and outside markets. It is destined to fill an important place in the national timber picture.

THE LAKE STATES—once famous for white pine in great volume and envied because of nearness to consuming centers and to the agricultural west, this region now faces acute forestry problems.

Generally the situation is more critical than in the South where nature has been fairly effective in restocking the land with usable tree growth as logging proceeded. Broadly the major problems are how to tide over existing plants and their dependent populations, even on a rationing basis, until second growth reaches merchantability, how to utilize the great quantities of low-quality material especially in the aspen-birch type in order to make way for better forestry and tree growth, and how to provide adequately for restocking the millions of acres of nonrestocking land.

About half the original timbered area, or 52,000,000 acres, is now commercial forest land: 7,000,000 acres is saw timber; 11,000,000 cordwood; 13,000,000 restocking; and 21,000,000 either poorly stocked or nonrestocked. That is the picture and two-fifths of it is not filled in with satisfactory tree growth of any kind.

Analysis of the growing stock situation shows an average cubic-foot volume per acre of only 464 feet, compared to 847 for Sweden; and an unbalanced condition

For the past eight years the United States Forest Service has been taking an inventory of the forest resources of the country. Calling for field examinations, cruising and mapping almost one-third of the land area of the nation, the task is a herculean one but justified by the need of reliable information with which to deal intelligently with our greatest renewable natural resource. Today the field inventory or Timber Survey, as it is officially known, has been completed for three important forest regions of the country—the South, the Lake States and the Pacific Northwest.

The first over-all summary of the Survey's findings for these regions was presented to the Society of American Foresters at its annual meeting in Columbus, Ohio, in December, by Mr. Raymond D. Garver, director of the Survey. Because of its widespread interest and its importance as an accurate picture of forest resources in these regions, Mr. Garver's summary is here presented in extracted form.—Editor.

region-wide because there is a shortage of stands of merchantable or near-merchantable size, particularly near consuming centers.

The remaining saw timber volume however, is considerably more than anticipated although its quality is much lower than original stands. Total volume is 58,000,000,000 board feet; about one-third is softwoods, and two-thirds is hardwoods. Four-fifths is on saw-timber areas and one-fifth on areas of uncertain economic accessibility.

Total volume of all trees five inches and larger, in cubic feet is 26,000,000,000; 9,000,000,000 softwoods and 17,000,000,000 hardwoods. About three-fifths is in saw timber trees and two-fifths in cordwood trees.

One indication of the lower quality of the saw timber is that only one-third of the volume is in the better species such as white and red pine, sugar maple, and yellow birch, while two-thirds is in the less valuable hemlock, aspen, oak, beech, soft maple, etc.

Dependent on this timber for raw material are more than a thousand plants and for all or part-time employment forty to fifty thousand workers. How fast is it being removed? In 1936, drain from saw timber trees was 2,400,000,000 board feet; from cordwood trees 4,700,000 cords; together totaling 983,000,000 cubic feet. Saw timber drain alone equaled about four per cent of the total volume.

Saw timber growth on all areas in 1936 was 1,800,000,000 board feet. For all timber five inches and larger growth was 979,000,000 cubic feet.

Comparison of drain and growth regionally for saw timber shows an overcut of thirty per cent; for all timber an approximate balance. This last comparison does not mean that all is well, but rather that there is hope. Land nonrestocking and operations cutting out are the toxins that better forestry is needed. Nature, however, has been more successful in restoring cover to cutover lands than expected, and planting is helping too. Continued improvement in fire protection and in measures to ration the old growth and safeguard young growth from premature cutting and other abuse hold practicable potentialities for gain.

THE WEST COAST—the Douglas Fir region ranks first, unchallenged, in volume of old-growth saw timber, mainly Douglas fir, but last—unenvied—in nearness to markets. It is a unique area.

This region is fortunate in having sufficient forest capital for a permanent cut of some 6,000,000,000 to 7,000,000,000 annually. It is not necessary to delay until the growing stock is built up before initiating sustained yield, but it may be necessary to ration some mills while putting it into effect. For example, even the low cut of 1933 in the Puget Sound, Grays Harbor, and Columbia River districts exceeded that allowable under good forest practice. The major problem of course, is how to put in operation a practicable sustained-yield plan.

Four-fifths of the area is forest land, nearly equally divided between private and public ownerships. About nine-tenths is classed as commercial forest land. The best of the land is in private hands. Of the 25,800,000 acres of commercial forest land 11,000,000 is old growth,

7,600,000 second growth and cordwood, 2,800,000 reproduction, and 4,400,000 non-restocking.

One problem is the large non-restocking area. Another is the non-interest producing old growth on which growth and decay are assumed in balance.

In this comparatively small region occurs about 600,000,000,000 board feet of saw timber, about equally divided between Oregon and Washington. This is more than twice the volume in the South and equals about one-third of the total supply in the United States. Oregon has more Douglas fir timber. Washington has more cut-over area, mainly around Puget Sound and Grays Harbor.

It is estimated that little more than half the saw timber volume could profitably be logged assuming business conditions similar to the period 1925-1929,—whereas in the South four-fifths or more would be operable.

The total volume of all trees five inches and larger is 125,000,000,000 cubic feet—seven-eighths in saw timber and one-eighth in cordwood trees. Nearly one-third is in species well suited to pulp manufacture.

The 1936 drain on the saw timber was 9,500,000,000 feet, mainly Douglas Fir, on the cordwood trees 1,700,000 cords, which together total 1,833,000,000 cubic feet. Of the total volume produced in the United States this region contributed about thirty per cent of the timber, ninety per cent of the shingles, and twenty-three per cent of the pulpwood.

With this enormous outgo of forest capital, how about the income from growth? Growth of saw timber is only 2,700,000,000 board feet and for all timber 917,000,000 cubic feet. The ratio of drain to growth is three and one-half to one in board feet for saw timber and two to one in cubic feet for all timber. These ratios are not particularly significant because of the large volume of old growth.

What is significant is that the drain is concentrated in easily accessible areas which results in overcutting the timber surrounding dependent communities. Unfortunately the cut-over land is not restocking adequately. This with accompanying ills upsets sustained yield and creates uncertainty among the people. One measure of the value of a sustained cut is that the forest industries support either directly or indirectly about half the population of the region.

The amount that will be available under sustained yield depends upon many factors such as the proportion of the timber that is economically operable, as time goes on, the extent to which partial cutting replaces clear cutting, and trucks and tractors replace high-lead railroad logging, and lastly the success attained in distributing the cut so as to preserve and build up the growing stock on all commercial areas. The Douglas Fir region may have a surplus of old-growth timber, but it is not believed to have an excess of growing stock as is sometimes stated. Currently it needs to strive for full use of its forest soil just as in other regions.

This reservoir of timber is important not only to the region itself but in helping to relieve excessive overcutting in second-growth stands of the East while they are being put in satisfactory condition for timber growing.



EDITORIAL



THE TIMBER SURVEY

WIDE READING of Mr. Garver's article "The Nation's Timber Stand," published in this issue of *AMERICAN FORESTS*, should go far to dispel the public belief long prevalent that an impending timber famine hangs over the country. This belief has become so deeply imbedded in many minds that it will not be easy to correct. The fact that it has been fostered and capitalized upon by foresters to spur the public to the need of conservation action is of no more moment than the fact that lumbermen in early years destroyed forest resources on a gigantic scale. Both acted in good faith as the times gave them light and incentive. The main thing now is that the timber survey is serving to put our forest situation on a factual basis and to bring into sharp relief the problems that stand out as of first importance. No longer need guesswork with its diverting controversies and its dangers of misdirected efforts be the guiding star in charting forest policy.

As we appraise the timber survey findings summarized by Mr. Garver for the three regions of the country in which the inventory has been completed, the specter of a national timber famine bows out of the picture and three fundamental lines of action take the foreground. They are: (1) better protection of our present forest capital, including growing timber and timber producing

lands from fire, insects and disease; (2) improved forest practices in the woods and the mills; and, (3) development and maintenance of markets for the wood which numbers one and two will yield.

These lines of action if made the tricolor of national forest policy would seem to lead most directly to a balanced forest economy for the country. They embrace great and challenging fields for forestry to exercise to the fullest its technical skill and breadth of vision, industry its leadership and public consciousness, and government is nonpartisan help. The present lack, it would appear from the results of the timber survey thus far, is not shortage of forest growing stock, although regionally that is not a matter for complacency, but rather the failure of foresters, industry and government to see the more important problems with a common eye and to attack them with united and harmonious effort.

The timber survey, we believe, is serving to correct this situation by putting on a factual plane the present forest structure of the country. In so doing, it is proving its worth many times over. That the survey work is only half completed is to be regretted because its full value will not be realized until the forest resources of the country as a whole have been inventoried. Congress should find ways and means to speed up the work.

FARM WOODLANDS AND THE AAA

IN RECENT YEARS much emphasis has been placed upon the need of more intelligent management of farm woodlands. The question is important because almost one-half of the forest growing land of the country is farm woods of one type or another which under proper management can be made to play an important rôle in farm economy. Unfortunately, the Department of Agriculture traditionally has not been able to see the farmer's woodlands with a particularly interested eye. Its sights are centered mainly on plowed fields.

With the coming of the AAA and its federal aid for better management of farm lands, it was hoped that the forest end of the farm might cease to be a stepchild and sit at the Department's first table. Things apparently, however, are not working out that way. In the farm-forest regions of the South, the Lake States, New England and the Pacific Coast, there is a growing feeling that the federal agricultural conservation program as now administered does not promote the kind of farm economy to which these regions are naturally adapted. In most cases, the farms are small and a balanced economy appears attainable only by clearing more land for annual crops or increasing farm income through outside employment and better management of farm woodlands. More outside employment means there must be more

woods work. This latter alternative seems more in keeping with the objectives of the agricultural conservation program than does clearing for the plow. It not only involves a type of land use which promotes the conservation of soil and water but it tends to retard increased crop production.

As the AAA now functions, the amount of benefit payments any farmer may earn is determined by his total crop acreage and the acreage of his soil depleting crops. In the farm-forest regions, total crop areas as now defined are low for the vast majority of the farms. Hence there is little to be earned. To be sure a farmer may use tree planting or farm woodland improvement to earn allowable benefits but the extent of them is so limited by the small amount of crop land on the farm that the farmer gets little help and therefore little incentive to bring his woodlands up to full possible productivity.

It would appear, if the Department really believes what it preaches—that trees are a farm crop,—it should at least recognize as crop land not only forest plantations, which meet reasonable standards, established on the farm but also the acreage of existing farm woodlands to which the farmer has applied acceptable standards of forest cultivation and management.



Over granite trails two miles above sea level

SOME Trail Riders are the result of an urge akin to the spirit of Wordsworth when he wrote "Let Nature be your teacher"—others simply seek good fishing with pleasant companionship, or a new adventure. But for whatever reason, we came—nineteen of us—to ride the High Sierra trails last summer under the direction of The American Forestry Association.

As this pioneering group assembled at Bishop, in California's beautiful and historic Owens Valley, on August 19, it was apparent that we were as varied in type as in motive. Yet we knew that each would contribute his or her share to make the wilderness days ahead of us memorable ones. So we lost little time on formalities, focusing our mutual interest on such immediate and all important things as maps and duffel.

TO THE HIGHEST MOUNTAIN

With the Trail Riders of the Wilderness
in the High Sierra of California

By MARY DOWNING

Under the watchful eyes of our genial escorts we were soon speeding across the valley, our ears pointed toward a narrow canyon at the head of which, we were told, our road would end. An hour later this proved to be true and we came to a stop where the 10,000-foot contour rims beautiful South Lake at what is known as Parher's Camp. Here was Trail Rider country—the land beyond the road's end—and we were enthralled. The lake lay quiet, in the warm sunshine, but its expanse of blue water looked cold and deep. We discovered that this was the first and largest of a chain of lakes in a huge amphitheater, bounded on the east by the barren Inconsolable Range and on the west by several grim, rocky peaks, rising over 13,000 feet. And in the distance, apparently shut off by ice and snow, was Bishop Pass, over which we would ride before sundown.

The morning was still young when the call of "boots and saddle" brought us hurrying to where our packers were engaged with an excellent string of riding and pack horses and mules. Quickly we mounted, adjusted our stirrups, and waited for the signal from Ike Livermore, our guide, to blaze the way for the Trail Riders of the Wilderness to the highest mountain in continental United States—bold Mt. Whitney, a hundred miles to the south.

And with that signal to be off came little shivers of excitement. For here we were, nineteen men and women



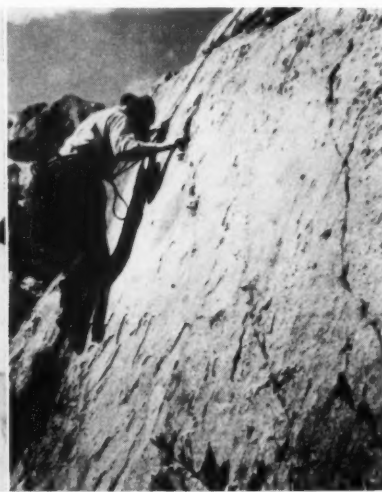
Marian W. Mair

Through a Sierra snow field



Janet V. Lee

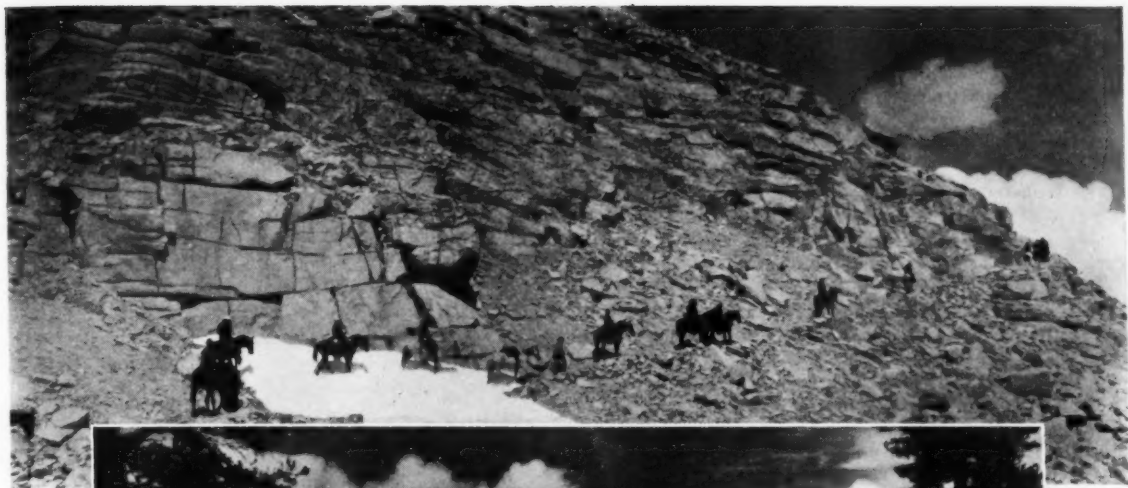
On Mt. Whitney—top of the U. S. A.



Janet V. Lee

Rock climbing for the hardy

AMERICAN FORESTS



George J.
Openhym



At top, Trail Riders working their way up toward Foresters Pass on the approach to Mt. Whitney Center, panorama of the high country with its thinly timbered basins and granite capped peaks
Below, the pioneering party exploring Bench Lake, one of the most beautiful lakes in the Sierra

from various parts of the country who, prior to this day, had never looked upon each other—nineteen strangers, so to speak, leaving this last outpost of civilization for the unbroken wilderness which shrouds the top of America. Surely, here was the real adventure of modern life.

As we moved around the lake and began our climb toward Bishop Pass, we became conscious for the first time of the glorious detail in the beauty of the High Sierra country—endless alpine lakes, wildflowers that defied description, sheer boulders that shocked one with their immensity, snow patterns that intrigued the imagination. Trees were scarce at this elevation, and we found our appreciation of them multiplying at every mile.

Our first lunch stop was made in a grassy meadow by an unnamed lake. We rested and basked in the sun, each in their own way attempting to adjust comprehension to the magnitude of the country—an almost impossible task. Then we faced the trail for Bishop Pass, wondering if we would ever make it. We did, through an immense rock slide, banked by ten feet of snow at one place. We reached the 12,000 foot summit in the early afternoon and were soon threading our way along the rocky trail on the other side—with longing thoughts of a camp ahead. Our packers had found an ideal campsite in the timber's edge by Dusy Creek. With the bed rolls laid out, each in a prized location, we took time out to get a sunset view of the magnificent Le Conte Canyon. From our location the clean sweep of former glaciers in carving these vast amphitheatres made a great spectacle.

Even views such as these could not make Trail Riders forget they were hungry, and we were all on hand when the steaks were sizzling. When we gathered around the campfire, Ike, our versatile guide, played his accordion while we relaxed beneath the stars and sang. A huge kettle of popcorn—popped right at the campfire—was the finishing touch to a glorious first day. It wasn't hard to go to sleep, with the distant music of horse bells in our ears.

As we followed the descent of Dusy Creek on the second day we could imagine a future Dusy Canyon in the making. One of the native packers said that water ran off those mountains mighty fast—a fact we could see for ourselves. In beautiful Le Conte Canyon we forked to the south on the famous Muir Trail, which is being developed in the High Sierra region as a memorial to John Muir, the beloved naturalist. Lunch at Grouse Meadow gave our fishermen their first chance to match wits with golden trout. Then along the Middle Fork of Kings River, swift and clear, to where it is joined by Palisade Creek. We followed the latter upstream to our camp at Deer Meadow. Bedsites were

scarce along the Palisade, but we finally got comfortably settled for our two-night camp. As darkness fell, the cheer of the campfire gathered us about it.

Our first Sunday on the trail was called a "day of rest," but some ambitious souls left for a day's hike to new sights; others followed the Palisade trail for some leg-stretching by a series of unusually beautiful falls; the fishermen sought alluring waters, while the remainder busied themselves about camp. It was a nice day, in spite of a few damp clouds—in fact, an especially nice day, for we had heard there was a birthday to be celebrated that night, and everyone was having fun planning an impromptu gift. How amazingly ingenious people can be in creating so much from so little. Two dozen queer looking packages were finally assembled in a gunny sack and presented at our evening "sing." The comradeship of a trail group is indeed a good thing to have known.

Next morning we were rewarded for our early "roll out" call by the beautiful sunrise glow on Devil's Crags, framed by the valley. Such moments of great beauty are fleeting, but indelible in their impression. Off to an early start, we climbed the trail out of the rocky Palisade Basin and were soon on the switchbacks of Mather Pass. The trail was excellent, but we got our chief thrills from crossing snow-covered sections and from the magnificent view of the peaks. Again our horses climbed to 12,000 feet.

Nine miles were checked off before a suitable lunch stop was reached, so it was no wonder that a freshly baked ham vanished at the hands of hungry riders. Our afternoon ride down the South Fork basin of the Kings River was memorable for the picture of a real Cardinal Peak to our left, with a background of the bluest of skies and whitest of clouds. Forging the South Fork, we met the Bench Lake trail and were soon camping beside that magnificent body of water. A shivery breeze sent us to an early campfire—to feast on our usual good soup, fresh roasting ears, stuffed celery, and other such un-pioneer-like delicacies.

Another day and another pass! Leaving Bench Lake, we stopped for a last view of the South Fork basin with its lakes, moraines, peaks and pass, and then swung south past the rockbound Lake Marjorie, two smaller gems, and more effective red peaks. Though but a few feet higher than Mather, Pinchot Pass seemed like a super-accomplishment, for the trail scratched on

its talus slope "just grew." The riders took the easy way up, but a fifty-five per cent grade on the descent called for some boot work. Lovely deep blue gentians and interesting foxtail pines were highlights of our afternoon trail through the high open meadows to Woods Creek. We forded Sawmill Creek to a rocky eminence which, though at (Continuing on page 78)



Mary Downing

Looking back into the heart of the wilderness from the summit of Mt. Whitney

LOGGING THE BLOWDOWN

By STEWART H. HOLBROOK

Photographs by the
Forest Service



Saving hurricane strewn timber has brought back old logging scenes throughout New England. Here spruce logs are being salvaged in Vermont

I SHAN'T attempt to describe the fury with which the Big Wind went through New England's timber. Even the pictures of the wreckage don't describe it, nor begin to. You might as well sit and stare dully and uncomprehendingly at the figure "4,000,000,000 board feet"—which can't mean anything much to anyone, it is so vast—as to look at photographs which fail so miserably to depict the tragedy. It's one of those things you've got to see with your own eyes.

More important to New England than the loss of so much of its timber is the interminable train of tinder the hurricane has laid. There it lies, right now, threading its line in weird patterns all the way from Long Island Sound to Canada. It's a powder train 300 miles long and in spots a hundred miles wide. The powder is safely damp, now in late December. A few brief days of sun in May, possibly earlier, and countless New England communities will be ripe for a fire tragedy such as wiped off the map so many towns in the Lake States. It's a pity that New Englanders don't know what went on in Hinekley, Minnesota, once upon a time, or in Peshtigo, Wisconsin, but they don't. Only the forest agencies seem aware of the danger ahead.

The one great absorbing interest of individuals and towns is how much they are going to get for their wind-felled timber and who is going to log it. Uncle Sam

has stepped in to say that he will buy not the timber but the logs, delivered. The Forest Service has acquired pond rights for log-storage at various points, and has established scaling stations at the ponds. Prices have been announced. It's up to the owners to get the logs to the ponds where a government scaler will grade and measure the sticks.

Or a man or a town can sell logs to an established mill or box factory; or saw it in a portable mill, as the City of Concord, New Hampshire, has been doing in its parks and groves since early fall. Again, a group of timber owners can throw in their lots and form a partnership.

Logging was well under way in mid-December but it won't hit a peak until February. Several items have retarded it. For one thing,—horses and equipment. New England's high mark in lumbering was reached thirty-two years ago, with an annual cut of close to three billion feet. In more recent years lumbering has been done in dribbles, especially in the area hardest hit by the hurricane. Loggers died off. There was no more logging to do. The art was forgotten. That's why in recent weeks the sheds and barns of hundreds of New England farms have been ransacked. Sleds with rusted runners have been brought out into the light. Long-forgotten chains have been taken down from the ox-

bows they have hung on since the first Roosevelt was President.

Ox-yokes, too, have been brushed off. In New Hampshire at least ten yokes of oxen were leaning into their bows in December, hauling logs to the pond in the style of 1850. Nor will any horse remain in the barn this winter for lack of work to do. And next spring at least a few extra pairs of calked boots should be sold. In the town of Winchester, New Hampshire, I saw long landings of white pine that are going to be driven down the Ashuelot River. It will likely be the shortest drive of logs in history; a box factory rears its stacks about half a mile from the landings.

Greatest devastation of timber occurred in the northern counties of Massachusetts and in the southern portions of Vermont and New Hampshire, and that's why experienced woodsmen are so scarce: there hasn't been much logging in those areas since right after the Civil War. Not far from Keene, New Hampshire, I saw two "lumberjacks" performing who had no business outside a hayfield. Working on a landing at a pond, they appeared scared of the two cantdogs which their boss had supplied, and were pushing and hauling the logs around with their hands. . . . It was a melancholy sight, something I had never expected to see.

But some expert help has come to the blowdown region and more is on the way. True to a tradition almost as old as the republic itself, Bangor men have come down from the Penobscot to log along the lower Merrimac and Connecticut. Perhaps a score of boss-loggers from the famous Maine city had opened camps in New Hampshire when I was there. They brought tractors with them and they also brought several hundred Bangor Tigers, than which no better lumberjacks ever held ax or peavy. The boys are whaling into the great piles of brush and jackstraws and coming out with some surprisingly large logs. For fuel they eat time-honored fare—beans, johnnie cake and two kinds of pie, with a bowl of peasoup on the side. They have these items for breakfast, too. If they didn't, they wouldn't be Bangor Tigers.

By the time you read this there should be approximately 15,000 men salvaging New Hampshire timber alone. Add 10,000 for Massachusetts, perhaps 5,000 each for Maine and Vermont, and a total of 5,000 for Connecticut and Rhode Island. That makes 40,000 men at work cleaning up after the blow. It's more logging than New England has seen in a long time. But it isn't enough.

Residents of Petersham, Massachusetts, one of the hardest hit towns in the entire storm country, are going at the big job ahead of them in an organized manner, one that doubtless will be widely copied elsewhere. Approximately 40,000,000 feet of timber went down in Petersham, 10,000,000 of which is on the Harvard Forest, owned by the University.

Headed by Ayers Brinzer, a local citizen who in business hours is on the editorial staff of *Harper's Magazine*, Petersham citizens have organized the Petersham Forest Co-Operative Association, Inc., to log and dispose of 30,000,000 feet, much of it good white pine.

Brinzer gave weeks of his time to contacting the many owners of timber and in organizing the association. The group has engaged a well known lumberman to log its combined holdings. When I was there, Harvard pond was filling with logs, and nearby a crew of men were damming a good-sized brook to make another storage pond. Thirty million feet is a lot of logs for a non-logging country, but the way Petersham folks are going at it, they ought to have most of the logs in the

water or sawed into boards by next May. Two hundred men were sawing and sledding for the association. Harvard will take care of its own 10,000,000-foot windfall.

Petersham may be comparatively safe from fire hazard next summer, but it will face a tax situation akin to that of scores of towns in the hurricane area. Taxes will be pretty flat. Just how flat, no man can say as yet, but flat enough to pinch town treasuries as they have never been pinched before. Men who sound like alarmists, but who in all truth may be correct, say that many towns in the area will face bankruptcy not later than next spring. You can't tax a man's timber when it's down.

There are the countless summer resorts in the hurricane area. I saw a fair sample around the shores of Contoocook Lake in southern New Hampshire. Here were two hundred or more cottages, many of them costly ones, and all of them set in the midst of a veritable jungle of brush and windfelled trees—trees which salvage crews had sawed off on both sides to permit passage of the road. The trunks pointed out over the road like nothing so much as endless rows of long navy guns, each threatening the other across the way.

Big pines rested on and part way through roofs of houses and garages. Doors, windows, blinds, stovepipes and outhouses had been blown into the midst of the felled forest. Just to look at the mass of material made one tired at thought of the enormous work to be done. I don't mean the work of making the houses livable again, for that is something more. I mean the work of making the area safe for anyone to live in at all. In spite of the pioneering done at opening the roads, the place in mid-December caused me to think what a fire-trap it will be next June—if something more isn't done.

One can mark the week-by-week progress of the mop-up and logging operations on charts in Forest Service offices set up to meet the emergency—in Keene, Concord, Woodsville and Laconia, all in New Hampshire, and at strategic points elsewhere. Sixty-three ponds and dry storage areas were receiving logs in December, with sixty-eight government scalers on the job. The government had contracted to buy a little more than 200,000,000 feet of logs, with additions being made daily. Pond storage acquired by the government totalled space to hold 500,000,000 feet.

The Forest Service charts also trace the progress of CCC and WPA crews who are mopping-up—clearing brush hazard for fifty feet along each side of roads and highways; clearing like hazards from around isolated buildings and hamlets; and making respectable fire lines of brooks by cutting away the timber that was blown across them. By mid-December the CCC and WPA units had cleared 26,200 acres of hazard. That's all to the good, but it is nowhere near enough.

This mopping-up, as I have tried to indicate, is more important to life and property than is the logging of timber. The work has been handicapped by a lack of sufficient quotas of CCC and WPA help. Only "certified" men can be hired by WPA and there are many towns in New England which pride themselves on the fact that they have had no relief cases receiving Federal aid; they have cared for their own to such an extent that qualifying for WPA is considered a sort of disgrace—like "going on the town." If WPA rolls are increased by men who want work but who won't swear to poverty to get it, then the job of making the hurricane area safe for next summer may be completed. Otherwise, it most certainly will not be completed, in which case there will surely be a lot of fire-fighting jobs next June or July.

Complicating the logging problem is the bug question. Timber downed by the storm will be immune to the myriads of bark beetles if it is either sawed into boards or stored in ponds before late next May, or early June at latest. Timber left in the woods after that will be ruined, so far as lumber is concerned, in sixty days. Even Uncle Sam, who is a sucker if ever there was one, won't want any post-May logs next summer.

This correspondent is no prophet and he doesn't need to be, to say that there is going to be a lot of timber left for the bugs to eat—and possibly for fire to burn. It will be left in those townships where there is little cooperative spirit and no leadership. I visited one such town in Massachusetts.

The natives of this town wanted to know if I could tell them if the government was going to come to log their timber. Disclaiming any right to speak for Uncle, yet I made it clear I doubted Uncle Sam planned to do any logging. "Haven't you heard?" I asked, "that the government is ready to buy your hurricane logs?" The natives replied that they had. In fact, they seemed to know all about it. They also seemed to have no intention of getting their logs to a place where federal men could scale them. It would cost too much, it appeared, and nobody had any logging sleds or any horses, and day labor cost so much to hire—fifty cents an hour—and the timber was so hard to get at and was thrown every which way on the ground, and oats and gasoline were



A Forest Service scaler measuring logs. The government is buying salvaged logs and storing them in ponds to be sold and sawed later as markets for the surplus timber become available

so high, and there was too much snow in the hills and not enough in the valleys, and—well, I gathered that these men were not of the same breed that once lived here.

I reflected that these men, waiting for a government not only to buy their logs but to come and get them—that these men would never have created a civilization in the savage New England forest and climate; that they would not have dropped their plow and rushed to Lexington with a gun; that they would not have hewed beautiful churches and homes and town-halls with a broadax and whipsaw; and they never would have built and ventured in clipper ships to the ends of the world.

However, citizens such as these are not, I believe, representative, although enough of them exist, with chronic cases of the government "gimmies," to present a serious problem. For such helpless souls the Forest Service has listed the names of more than one hundred competent logging contractors, men with crews and machinery.

Wherever possible the government is encouraging cooperative logging.

Meanwhile, two Forest Service autogyros take into the air daily over New Hampshire. In them are crews who continue the job of mapping accurately the areas turned into fire traps by the hurricane. Enough had been mapped when I saw the results to warrant at least a tripling of the WPA and CCC crews engaged in protective salvage. Either that or New England is in for the smokiest summer it has ever known, and the smoke won't be that of industry.



J. W. Spaven

The first load of logs being placed in Turkey Pond on the outskirts of Concord, New Hampshire—the first pond put in use in the hurricane area for storing down timber

LIMBER PINE

Pinus flexilis, James

By G. H. COLLINGWOOD



LIMBER PINE is one of the smaller white pines. It is usually bushy, with branching trunks, and when growing near timberline may be only a dwarf ground cover. It grows singly or in small groups throughout the higher eastern slopes of the Rocky Mountain region from Alberta and Montana to western Texas and northern Mexico, and westward into Nevada and southern California. It is fairly common at elevations between 4,000 and 12,000 feet on exposed, rocky slopes, the tops of ridges and foothills, and sometimes in moist canyons or along the banks of mountain streams.

Usually a low, many-branched tree, limber pine occasionally develops an undivided trunk thirty, fifty, or even eighty feet tall, whose diameter is two to five feet. Ordinarily, however, the trunk tapers rapidly, and is seldom clear of branches for more than ten to twenty feet. Distinctly regular whorls of slender, tough branches stand out at right angles to the main trunk of smaller trees, and may extend to the ground. Larger trees have extremely long branches which bend gracefully toward the ground. The outer ends of the branches of the upper crown tend to assume a vertical position, giving a peculiar up-reaching effect. The twigs and branches are capable of being bent to such an amazing extent that it is called limber pine, and scientists named it *flexilis*.

Growth is slow, but its life fairly long. Individual trees may take 200 years to attain diameters of nine or ten inches, while others may reach eighteen to twenty-two inches in 200 to 300 years. Some trees are believed to live 400 years or more. Trees of greatest size are found in the high mountains of Arizona and New Mexico.

Each stout, stiff, dark green needle is one and a half to three inches long in closely pressed clusters of five, which remain five or six years on the twig. They are forward pointing, densely crowded and compressed rather than flaring, and appear as short tufts on the ends of the branches. Under a magnifying glass the margins are smooth with only an occasional semblance of teeth.

Reddish, pollen-bearing, staminate flowers are borne on spikes throughout the crown, while the bright red-purple pistillate cone-bearing ones are generally

Limber pine is a white pine of the high mountains with a relatively short trunk and long slender branches

in clusters near the top. The relatively thick, oval cones mature in late summer or early autumn of the second year, and shed their seed in September or early October. The cones are three to ten inches long, peculiar in that their broadly oval, light yellowish brown scales are greatly thickened, but without prickles, and are green or rarely purple at maturity. Instead of hanging down from the branch they remain erect, and at maturity stand out horizontally or decline only slightly. By early winter they fall from the trees without breaking up. The hard shelled, deep reddish brown seeds are mottled with black and from a third to a half inch long. Each narrow, rudimentary wing generally remains on the inner cone scale so as to leave a clean seed. Large seed crops occur at irregular intervals, but small quantities are released locally nearly every season. They are sought out by birds and rodents, who play an important part in disseminating them.

The large, hard shelled seeds, somewhat stubby and unarmed cones, which are horizontal rather than pendant on the branch, and the closely compressed bundles of smooth needles help separate this and its distinctly alpine associate, *Pinus albicaulis*, the white barked pine, from the other pines of America. With certain mountain pines of the old world they are classed as *cembrae* or stone pines, in distinction to the more common and usually larger white pines of the *strobi* group.

The bark of old trunks is dark brown or almost black, one and a half to two inches thick, with deep furrows between wide rectangular blocks. On trees eight to twelve inches in diameter the bark is broken into small, thin, gray-brown plates, while on younger trees it is a bright gray, often silvery, thin and smooth.

Its exceedingly slow growth and limby structure cause the light, soft wood to be dense and usually full of knots. The heartwood is pale lemon yellow, while the thin layer of sapwood is nearly white. The wood is very heavy when green, but a cubic foot when air dry weighs only about twenty-eight pounds, and is seldom found in commercial sizes. It is occasionally used for rough construction lumber, as well as for log cabins, fuel and mine props. There is no record of the amount cut or the volume of standing timber.

First observed on the upper slopes of Pikes Peak by Dr. Edwin James, an army surgeon attached to Stephen Harriman Long's Rocky Mountain Expedition of 1820, it was described and named in 1823.

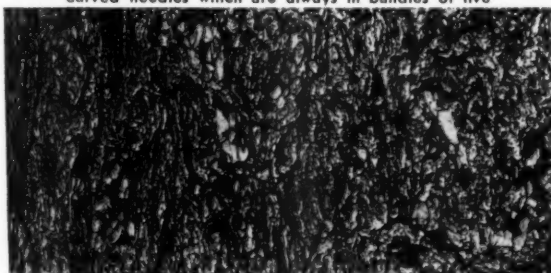
Pure stands of limber pine are sometimes found, but it is more common as an individual, or in small groves in mixture with mountain hemlock, Lyall larch, white bark, lodgepole and bristle cone pines at high elevations, and with Douglas fir, white fir, Engelmann spruce, and ponderosa pine at lower elevations. It is less frequently found in the Pacific than in the Rocky Mountain region.

Young trees, especially, suffer heavily from surface fires, but the long tap root and the flexible limbs make all limber pines resistant to wind damage. Like all other five needled pines it is subject to white pine blister rust, but the small economic importance and generally scattered distribution seldom warrants special measures for protection from this disease.

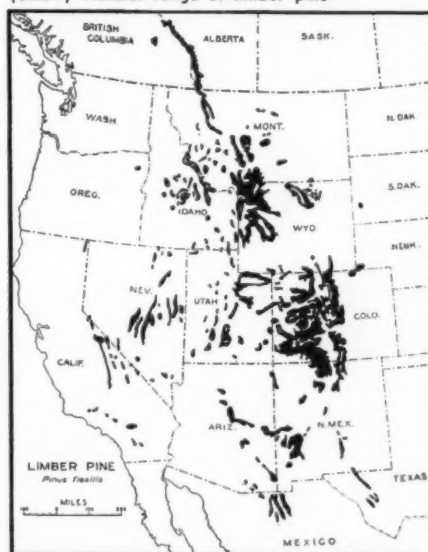
While not suited for forest planting, its slow growth and unusual outline resulting from the horizontal and pendulous branches indicate possibilities for landscape use. It prospers under most western conditions, and thrives in the northeast when planted in well drained soil at the base of a moist slope.



One and two year old cones among the plump forward curved needles which are always in bundles of five



The silver gray bark of youth turns brown and rough, and becomes nearly two inches thick with maturity.
(Below) Natural range of limber pine



TO THE HIGHEST MOUNTAIN

(Continued from page 72)

first discouraging, turned out to be one of our finest campsites. "Soft" rocks were used for beds; we were bound by plenty of running water; and our knoll commanded a superb view of sunset peaks. The light and shadows gave a soft, textural quality to the bare, rocky slopes, while golden clouds lit the sky. Far across the valley was Window Peak, with its fascinating peephole of light.

Our camp saw many activities on the second day of rest, including a rock climbing school, sun-tanning, fishing and hiking. The view of the lake-dotted basin from the Sawmill Pass trail, along with delightful patches of buttercups and yellow monkey flowers, made that little hike quite worth while.

On the following day we moved into position to tackle another pass. Our trek was along Woods Creek to its South Fork—a most enjoyable trail, with views of frequent cascades. Clouds that were gathering as we headed up the valley to Rae Lakes gave us a wet greeting for what was probably our most beautiful campsite. But the stars were shining by bedtime, as they did every night.

We all revelled in our surroundings in the morning sunshine. As I stooped over my washing pool, there lay the great Fin Dome, a shining white sentinel. The reflections of Dragon Mountain and Painted Lady had been captured in the main lake. The beauty of the lake itself developed as we followed its irregular shoreline. We were soon out of its basin, however, negotiating Glen Pass by unbelievably short, steep switchbacks. Grand crags and lakes took our shivering breath from us at the pass, which had become an unexpected thriller. Lunch at Bullfrog Lake gave us a welcome rest before pushing on south for our camp on Bubbs Creek. Occa-

sional showers kept us guessing at this high camp, but we finally snuggled down among the rocks for another night's rest under the stars.

Foresters Pass was our big moment on the following day. Every foot of the trail was exciting. Crossing from the Sequoia National Forest to the Sequoia National Park, we descended on a remarkable trail that was deeply etched into the mountain's sheer, rocky face. Far below, on what appeared to be a gravelled prairie, our lunch mule cut a welcome sight as it jogged ahead of us. However, we found it a long ride to timber and lunch, for the "prairie" became a rough, rocky basin

when we descended into it. Our afternoon ride was memorable for the view of the rugged blue peaks of the Kaweah Range on our right. As we made camp at Wright Creek, the sun and clouds argued about the weather.

Fair skies greeted us, however, when the fishermen and the explorers set forth the next day. The latter were headed for Tulainyo Lake, intrigued with the idea of its being the highest lake on the North American Conti-

nent. They rode to Lake Wales, tied up their horses to enjoy the stern, craggy setting, and started out afoot. Several hours were required to "find" Tulainyo—not to mention a two-mile climb around 14,000 feet elevation—but the explorers experienced a satisfying thrill of accomplishment and a spirit akin to that of the mountain goat as they moved over the boulder fields. Set like a large crater lake, banked with snow, and partly filled with icebergs, Tulainyo was a complete reward for their efforts. The fishermen at Wright Lakes had a great day also, returning with big trout and big stories.

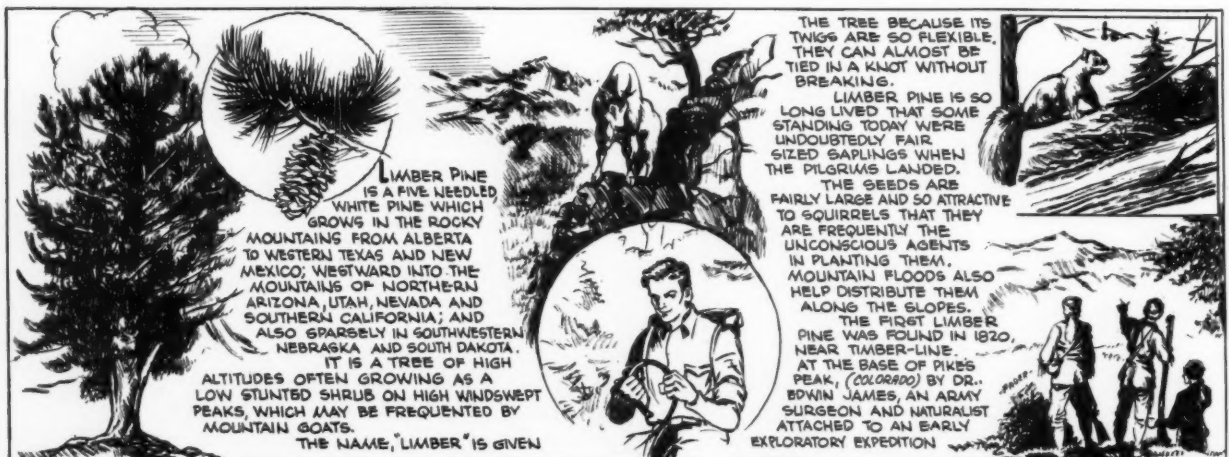
The next morning found us moving from our grassy plateau to a picturesque (Continuing on page 94)

FOREST FIRE

The Red Paradox of Conservation

will be the subject of the April issue of **AMERICAN FORESTS**—ninety-six or more pages, graphically illustrated, with articles by the foremost authorities on forest fire protection. From the great fires of the past to the problems of the future, the story of the Red Menace will be told with simplicity and directness. Watch for this Special Issue—and plan to order copies for those who should know more about this evil.

TREES AND THEIR USES—No. 39—LIMBER PINE





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THE RANGER'S CORNER

I am writing this primarily to discredit two popular ideas about bears—first, that a bear will not climb a tree after a man, and, second, that a black bear will not attack a man without being cornered or wounded, or unless it is a she bear and her cubs are being molested. I carried these two ideas around with me until several years ago, when I was forced to discard them along with any disrespect I may have had for a she bear with cubs.

I was then a fire guard on the Clearwater National Forest, in Idaho. The nature of my work was such that I often traveled alone for two or more days at a stretch, on mountain trails if lucky, otherwise over windfalls and through heavy underbrush. It was only natural that during a season or so of such work I should see a great deal of the wildlife of the region. I invariably carried a six-shooter, more from habit than from fear of anything in the mountains. That is, I did until the time of the incident which I am about to relate.

Shortly after noon one day, a fire was reported on a neighboring area. As the guards of that area were already on fire duty, I was dispatched to corral it. Needless to say, I started immediately. When about five miles from camp my eyes took in a small black bear—a three year old, I should judge—eating huckleberries above the trail. She was only twenty yards away, so I stopped to watch her. After a moment of this, and not caring to go closer without making my presence known, I called out, "Hello, settler, ya gettin' many?"

Instead of staring at me for a moment before lumbering off to parts unknown, she emitted a harsh "arrumbush," whirled on her hind legs, and dove toward me. That was all I waited for and, after clawing once for my missing six-shooter, was out of my pack and up a spruce tree in less time than it takes to tell it. Could the late Mr. Darwin have seen my first few feet of ascent, he would have nodded wisely and said, "I told you so."

I stopped when fifteen feet from the ground and looked back. The bear was just then tearing off up the hill to the foot of a tree containing two cubs, neither of which I had seen before. One of them had followed my bad example and gone up only a few feet. He got soundly spanked and sent bawling to join his brother on the topmost branch

MAN MEETS BEAR

Will a Bear Climb a Tree After a Man? Will it Attack Without Being Cornered? Here's One Smokechaser Who Can Answer

By George K. Oliver

for his indifference. Her offspring taken care of, mamma bear came coughing back to my refuge to see if there was anything she could do for me. As I was comfortably situated, she contented herself with showing her teeth, blowing through her nose, and making ugly faces at me for a time before returning to her cubs. But this was only an interlude—she came right back to me again.

Growing tired of the performance, I started yelling and made as if to come down the tree. This got immediate results, though different than hoped for. Mamma bear came more than halfway to meet me and was blowing her breath on my toes almost before I could bat an eye. There she stopped while we studied each other's facial expressions.

My hand kept involuntarily making little circles of exploration over and about my right hip, where the six shooter I did not have should have been. This did not help the situation at all. I had a sheath knife in my belt, but never thought of it. Anyhow, did you ever stand on a limb and make a pass at anything below your feet? Just try it. My hand finally came in contact with my aluminum canteen, full of water. I tore it loose, drew back, and let Mrs. Bruin have it on the end of the nose. Whether stunned, which is doubtful, or merely perplexed, which is probable, she let loose all holds, slid down, called her cubs, and away they went, apparently leaving the country.

I remained in my roost until I was convinced the coast was clear. Then I came down and started gathering up my pack. It was destined not to be gathered just then, however, for as I started to pick up my canteen, I heard my lady

friend returning. As she appeared to be in a surly mood and too close for comfortable climbing, I took to the other alternative—my heels. As I ran I could hear her giving a sort of cough at every jump, something which sounded like "a-huh, a-huh, a-huh," only it came much faster than you can say it. I took it that she was asking for greater speed and more noise. She got it.

I don't suppose she followed over a dozen jumps, else she would have caught me. However, I ran a good two hundred yards without looking back. In fact, I looked only after I was on a swinging shelf attached to the ridgepole of an old cabin in which I remained for about an hour and a half. After screwing up my courage, I started after my pack. This was much against my own good judgment, but I could anticipate the unkind things the gang would say if I had to tell them a bear took my "smoke sack" away from me.

When yet some yards from the scene of our frolic, I suddenly saw fit to make a wild leap down the hill—and that was as far as I got. She had been laying for me. As I leaped, something ripped off the covering of my posterior extremities. I tripped and fell, rolled over with my shoulders against a bunch of bear-grass, and she was upon me. I kicked her in the slats with my right foot, swung a left hook to the jaw, drew my knife and made a pass with it, aimed to catch her under the left arm. Then—curtains.

When I opened my eyes all was peace and quiet. Even the blue jays and pine squirrels had ceased their chattering, so I knew that I had been out some little time. My knife was lying in the trail about twenty feet away, either knocked there or stuck in the bear and dropped there. I had a severely bruised shoulder, but other than this and badly torn overalls I seemed to be little the worse for wear. I made my way to a phone two miles away, summoned assistance, and was under a doctor's care the next night.

The ranger and the doctor went up to the scene of battle a few days later but saw nothing of the bear, although they did find plenty blood on the leaves. I wore a sling on my arm and a pained expression on my face for about a week, then returned to work.

If anyone asks me, bears do climb trees after people, and they do have other characteristics besides good nature.

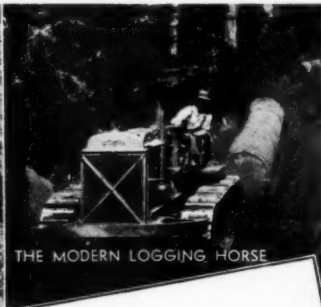
ASSOCIATION'S 64TH ANNUAL MEETING

On March 22, at the Mayflower Hotel in Washington, D. C., one of the outstanding conservation events of the year will take place—a special one-day meeting launching a nationwide forest fire protection campaign. This event, to be the occasion of the 64th Annual Meeting of The American Forestry Association, will be featured by a special Forest Fire Dinner at which will gather not only the foremost foresters and conservationists of the nation, but legislators, state and government officials, and representatives of organizations interested in forest fire prevention, protection and suppression. Both the meeting and the dinner will be open to the public, and members of The American Forestry Association, along with their friends, are cordially invited to attend. Reservations may be made by writing the Association at 919 Seventeenth Street, Northwest, Washington, D. C.

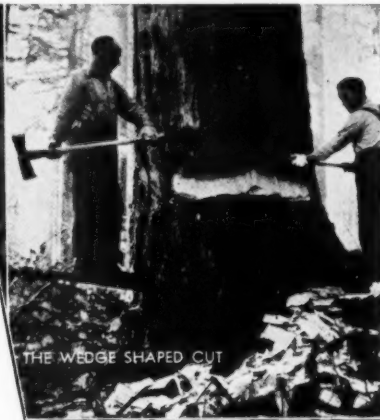
The importance of this meeting and dinner cannot be overemphasized. The forest fire situation in this country is still critical. Science is doing its share. The men charged with fire protection on national and state forests are doing their share. But the public—the real user of these areas—is lagging in cooperation. This meeting and dinner are designed to launch a campaign to arouse the public to take a greater responsibility in the protection of forest lands from fire. Your participation is eagerly sought—and needed. Plan now to attend.



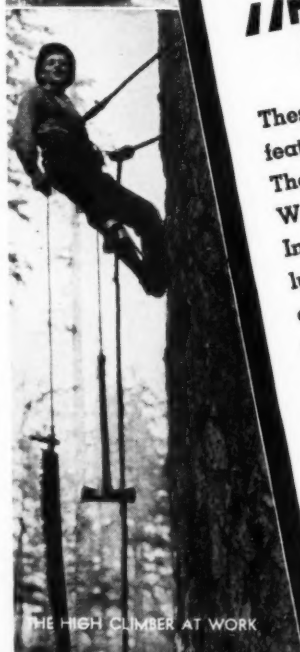
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TOPPING A SPAR TREE



CONSERVATION

CHIEF FORESTER PRESENTS ENCOURAGING REPORT

PAVING the way for what may be the discarding of the old timber scarcity argument on which the American forest program has been developed, Chief Forester F. A. Silcox, in his 1938 annual report of the Forest Service, states that the forest survey indicates we have more forests and more forest growth than we thought we had.

With 630,000,000 acres in forest, this country will probably not need more forest land; yet to increase national income and help underwrite a permanent and more prosperous civilization, we need more and better forests, he declared. "If care is used there should be no excuse for a timber shortage of national proportions, but," he warned, lest this be taken too optimistically, "there are many regions where the timber resource is already so depleted that the needed forest products must be shipped in long and costly hauls."

Less critical of industry than in his previous reports, Mr. Silcox paid tribute to those industrial and other owners of forest lands who have made real progress in forest management. "These are the leaders, and credit is due them," he said, "for despite competition from less progressive neighbors, they are now redeeming in whole or in part obligations inherent in all forest lands no matter who owns them. But the need for more progress is acute, because a big majority of private owners are still geared to quick liquidation which threatens the stability and even the existence of many communities."

A nation-wide forest policy and plan of action is urged throughout the report. Such a policy should recognize that some 630,000,000 acres which are more valuable in for-

ests than for any other purpose, must on the whole be protected from fire, insects, diseases, and processes of destructive exploitation by man, and that protective forest cover must be restored where necessary. Since forests are crops, provision should also be made, said Mr. Silcox, for such management as will assure full and continuous use of forest lands and their resources as parts of a unified pattern contributing to local and national social and economic structures.

Public cooperation, according to the Chief Forester, is concerned with forest lands in private ownership that are capable of commercial production. Such lands total 341,000,000 acres, of which 139,000,000 acres are farm forests.

"These constitute the best three-fourths of all our commercial forest lands," he said, "and have ninety per cent of all potential forest growing capacity. If the country is to prosper, private owners must recognize and redeem their respon-

sibilities and obligations, but in return for benefits received, so must the public. The public can do its share through more cooperation in such things as fire protection, credits to forest industries, reestablishing and maintaining farm woodlands, and by research."

Private owners have already invoked public regulation to prevent and suppress forest fires, and thus have helped save lives and property. "In some states," he continued, "public agencies may suspend logging operations during heavy fire danger. In others, logging operations may be undertaken only under permits issued by a public agency. But as more control of traffic is needed now, so is more control of forest lands." Then, pointing out that ample legislative precedents exist for establishing federal control of forest cutting practices, he predicted that federal control within the democratic pattern will inevitably be extended to forest lands, no matter who owns them.

Turning then to the national forest system for whose administration he is responsible, and which now includes 175,238,168 acres of federally owned land in forty-two states, Alaska, and Puerto Rico, he reported that more than 1,250,000,000 feet of timber was harvested from national forests last year. These public properties, the report declares, furnish forage for nearly 7,000,000 domestic live-stock, help prevent floods and erosion, provide domestic water for 6,000,000 city people, afford food and shelter for more than 1,700,000 big-game animals and 1,500,000 furbearers, have nearly 70,000 miles of trout streams, and provide outdoor recreation to 30,000,000 people, and a living for almost 1,000,000.

FORESTRY AND CONSERVATION HIGHLIGHTS IN THE 1940 BUDGET

	1940 Estimate of Appropriation	1939 Appropriation	Increase	Decrease
FOREST SERVICE				
Total	\$19,827,285	\$19,560,400	\$ 266,885	
National Forest Administration	12,679,000	11,569,754	1,109,246	
Private Forestry Cooperation	125,000	100,000	25,000	
Forest Products	700,000	628,361	71,639	
Forest Survey	250,000	250,000		
Tropical Forest Experiment Station	30,000		30,000	
Forest Management Research	648,403	648,403		
Range Investigations	225,935	225,935		
Forest Economics	131,295	121,295	10,000	
Forest Influences	139,152	139,152		
Forest Fire Cooperation	2,000,000	2,000,000		
Forest Planting Stock Distribution	100,000	100,000		
Acquisition of Forest Lands	2,000,000	3,000,000		\$1,000,000
SOIL CONSERVATION SERVICE				
Total	23,645,584	23,645,584		
Cooperative Farm Forestry	600,000		600,000	
BIOLOGICAL SURVEY				
Total	4,163,691	3,888,340	275,351	
MISCELLANEOUS				
Dutch Elm Disease Eradication	378,489	378,489		
White Pine Blister Rust Control	300,000	300,000		
Gypsy & Brown-tail Moth Control	375,000	375,000		
Forest Tree Diseases Investigations	255,392	255,392		
Forest Insect Investigations	253,100	253,100		
Farm Forestry Extension	100,000	56,838	43,162	
National Arboretum	54,587	54,587		
Naval Stores Investigations	79,400	79,400		
Forest Fire Weather Service	62,300	62,300		
Forest Fire Weather Investigations	3,930	3,930		
NATIONAL PARK SERVICE				
Administration of National Parks	3,923,740	4,350,685		426,945
CIVILIAN CONSERVATION CORPS				
BUREAU OF FISHERIES	295,000,000	248,331,000	46,669,000	
BUREAU OF FISHERIES	2,148,000	2,108,000	40,000	
DIVISION OF GRAZING	1,000,000	900,000	100,000	
(Department of the Interior)				
O AND C LANDS	125,000	125,000		
ADMINISTRATION AND PROTECTION OF INDIAN FORESTS				
ADMINISTRATION AND PROTECTION OF INDIAN FORESTS	493,000	455,000	38,000	
TOTAL FOR CONSERVATION ACTIVITIES				
TOTAL FOR CONSERVATION ACTIVITIES	\$352,788,498			

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3. Blade can be set for right or left side casting or bulldozing. Either end of blade can be lowered as much as 12" below opposite end.
4. All actions of the hoists are self contained within

the attachment members and are transferred to the rugged side frames of the tractor.

5. The body of the tractor is not used as a counter balance for the roadbuilder, therefore tractor spring is not depressed and there is no resulting abuse to tractor parts. Side draft is transferred directly to the track frame.

6. The main side frames are of very rugged construction and are attached to the tractor on the track frame pivot shaft. Thus roadbuilder frame and track frame move about the same center and free movement of the tracks is not restricted.

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M. A. Obremski

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Conducted by A. ROBERT THOMPSON

WINTER INJURIES

ICE-COATED trees and shrubs may be a beautiful sight to many, but the recollections of my first year as city forester of a northern municipality are still so vivid that I cannot see sleet forming on trees without a shiver of apprehension. The winter season, to the city forester, normally is a period when he is permitted a breathing spell from insect and disease attacks; demands for tree trimming, removal permits and spraying operations — but not that year.

The first official day of winter was ushered in by a light rain with the thermometer hovering around thirty-two. Gradually, throughout the day, streets, wires and trees received a coating of ice which, by dusk, was perhaps a quarter of an inch thick. A few branches snapped from the heavy load but there was nothing to worry about seriously. Then the blow fell!

The wind, which had been non-existent all day, decided to take a hand at this juncture. The result was easy to guess—utter havoc. Overburdened with ice, the normally flexible branches were so rigid that they were unable to bow to the wind. Instead, they snapped off in countless thousands. Traffic was halted, houses and cars were crushed as huge branches and trees fell like jackstraws.

For days hastily recruited crews struggled to free the main traffic arteries, but it was many weeks before the debris from thousands of mutilated trees was cleared away entirely. Even today, after a lapse of many years, hundreds of trees bear the slowly healing scars of that catastrophe.

To those of us who have experienced northern winters, the tragedy of sleet

storms is not unusual. The unbearable loads placed on trees by ice and snow necessarily result in some broken branches—but major injuries from this cause usually are preventable.

Certain species of trees—maples and elms, for example—either are naturally brittle or develop weak crotches which make them susceptible to damage. Others, as the oaks, are better adapted by nature to withstand abnormal loads. In many cases, trees which are structurally weak may be strengthened by a few cables placed high up in the crown or by bolts through weak crotches, but sometimes a reduction of the crown may be necessary to reduce the load of sleet and snow and prevent disfigurement. This is not a job which can be done by the average homeowner, however, and it is wise economy to have the best expert available check over your trees for structural weaknesses.

Trees already mutilated require careful and painstaking work if they are to overcome the damage they have sustained. The

broken branches must be pruned back to sound laterals to encourage a new crown; tear scars must be smoothed and traced to a streamlined perimeter and dressed to prevent infection; and weakened branches and crotches must be cabled or bolted to prevent further injury. Moderate fertilization will assist the tree in its effort to overcome its ragged appearance, and as new shoots develop they must be carefully thinned and trained so that they will form a desirable crown and not one that resembles an eagle's nest.

But split crotches and broken branches are not the only tree injuries which result from the hazards of winter. Have you ever heard a tree explode? They do, you know, but not in the ordinary way. The outward manifestations of such explosions frequently are seen on the southerly sides of trees and take the form of deep vertical frost cracks, or frost shakes, as they are sometimes called.

Steady cold weather is seldom responsible for such injuries but when rapid freezes occur or when a warm sun strikes the trunks during the day, followed by a sharp drop in temperature at night, the resultant contraction sometimes results in a separation of the woody tissue along the lines of the medullary rays. When the temperature moderates, the cracks close and it is difficult to find them, especially after a growing season. This type of wound rarely heals entirely by itself, however, and comparable conditions will bring about similar results until, after a few years, a permanent ridge may be formed. Old wounds of this type frequently exude a sour sap called slime-flux which makes healing very difficult.



Charles F. Irish

A sleet storm and its aftermath. The tree will recover under skillful treatment, as shown at right, but proper bracing would have prevented damage in the first place

A frost crack cannot be prevented. However, its recurrence and subsequent injury frequently may be eliminated by placing bolts through the tree at right angles to the plane of the crack. An old frost crack requires more thorough attention and complete cavity treatment may be required for a valuable shade tree.

One of the most serious types of winter injury is that known variously as die-back, winter sun-scald and winter drying. It occurs, particularly on evergreens, when a warm sun and strong wind cause rapid thawing of frozen tissues, accompanied by water loss from the crown while the root system is still frozen. The exposed side of the tree usually is the worst affected and injured leaves or needles will wilt and die, or appear as though they had been scorched by fire. Later they will drop off, giving the tree a moth-eaten appearance.

There is little that can be done to prevent such injury to large trees except to choose species for the home site which are thoroughly hardy and deeply rooted. Small evergreens, as rhododendron, laurel, box and small hemlocks, which do not take kindly to winter exposure, may be given some measure of protection through the use of screens to shield them from the winter sun and the strong wind of early spring. A heavy mulch also will help to prevent die-back, but it should be kept loose and porous enough to permit rains to soak in. As an additional precaution it is well to assure the roots of plenty of moisture by soaking the ground thoroughly before it freezes.

Still another type of injury may be traced directly to freezing of the roots. This damage doesn't show up until after growth starts in the spring and may then be revealed by undersized or misshapen leaves, perhaps followed by sun-scorch. These symptoms are rather general, of course, but if the small roots are examined they may have the appearance of being water soaked. This may be followed by a browning of the affected tissues.

The injury is especially severe on shallow rooted trees when mild late fall temperatures are succeeded by deep freezing of the ground. Treatment for root freezing includes cutting off the injured roots and dressing the cut ends to prevent infection; fertilization to stimulate growth; and mulching to conserve soil moisture.

The twigs, branches and trunks of trees also suffer from freezing. Warm moist days in the late fall followed by an early frost frequently result in injuries to the buds and cambium which have been stimulated to excessive activity. The damage may be most severe on the southerly sides of the trees and, unfortunately, nothing can be done to prevent it. Proper treatment of injured parts would include the pruning of affected branches and twigs, and wound treatment for damaged bark areas.

The winter season is a time when nature takes her toll of many trees, so make sure that structural weaknesses in yours are properly braced and that they enter the winter with ample moisture in the soil around the roots.

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Washington, D. C.



Your Opportunity To Pay Tribute To Fire Heroes

FOREST fire fighting in this country is the most arduous and hazardous task which a forester, or a forest protective employee is ever called on to perform. Not only may an individual's life and limb be endangered but oftentimes sole responsibility falls upon him for hundreds of thousands of dollars worth of public resources or property as well as for the safety and lives of other fire fighters. Because of this, fire fighters are often called on to display in the highest degree qualities of courage, judgment, quick thinking, and coolness. These qualities heretofore have been formally recognized in some specific cases merely by letters of appreciation and commendation from those higher in authority. It is proposed hereafter to recognize outstanding cases of personal heroism in fire fighting by the award of a bronze medal to be known as the American Forest Fire Medal.

PURPOSE

The basic reasons for such an award are (1) to show public appreciation to individuals for outstanding acts or actions under unusual stress of difficulty on forest fires which exhibit the highest degree of personal courage, judgment and initiative in fighting forest fires anywhere in the United States, Canada, or Mexico, and (2) to stimulate and maintain morale of all persons engaged in or responsible for protection of forests from fire.

ELIGIBILITY

Any person may be eligible for the Award after satisfactory evidence is presented that he has performed an act worthy of consideration for such an award within the boundaries of the United States, Canada, or Mexico.

EVIDENCE

Evidence of such acts of heroism or bravery, judgment, initiative, alertness and coolness on an actual forest fire shall consist of sworn statements from at least two eye-witnesses of the act, or from persons personally familiar with the entire circumstances of the act. The award may be posthumous.

BOARD OF AWARD

A group of not less than 3 nor more than 5 persons shall constitute a Board of Award to pass on all applications, evidence and proof of individuals recommended for the Award. A favorable vote of not less than 3 members shall be necessary for any award and this vote shall be unanimous as to all members voting. The Board consists of:

J. P. Kinney, Chairman, The American Forestry Association	John D. Guthrie, Society of American Foresters
Tom Gill, Pack Forestry Foundation	John B. Woods, National Lumber Manufacturers Association
T. S. Goodyear, Association of State Foresters	

The Board will conduct its deliberations either by correspondence or at such meetings as it shall consider necessary. The Board is now ready to accept nominations for the Award and individuals and organizations familiar with cases believed to deserve recognition are urged to submit their reports, addressed as follows:

The American Forest Fire Medal Board,
919 17th Street, N. W.
Washington, D. C.

ESTABLISHMENT OF FIRE AWARD FUND

In order to establish this Award on a permanent basis, a fund or foundation of not less than \$3,000 is necessary. Contributions totalling \$1,310 have already been received. The American Forestry Association desires to take this opportunity to thank each individual who has had a part in bringing this fund up to the present figure. Further assistance in establishing this fund is hereby solicited. It is believed that foresters, forestry, park, and all forest protective associations, as well as conservation and wildlife groups will welcome the establishment of such an Award and will want to contribute towards its foundation. Contributions of \$1.00 or more from individuals and larger amounts from organizations will be welcomed. Contributions should be sent to:

THE AMERICAN FORESTRY ASSOCIATION

919 SEVENTEENTH STREET, NORTHWEST
WASHINGTON, D. C.

Murderers' Creek

(Continued from page 59)

themselves, constitute an evil that taxes the incomes as well as the patience of the nearby cattlemen and ranchers. Not only is their pasture consumed and their food-stuffs trampled down but, due to the close grazing, soil erosion is developing into an additional threat. How long the ranchers can endure these losses amicably, no man will prophesy.

It is feared that even this special season will not solve the problem. Food or no food, once the deer are bottled up in the Murderers' Creek basin there they must remain until winter snows abate on the hills. The handwriting on the wall forces us to concede that one severe winter could spell disaster to so emaciated a herd long before spring even dreams of returning to Murderers' Creek.

Forest Taxation

(Continued from page 57)

tax reform be given careful consideration by the General Assembly during its current session. Contained in the report of the Commission are two relevant opinions from the Office of the Attorney General. The one holds that the classification of timber value in accordance with the differential timber tax would not encounter constitutional difficulties; the second opinion holds that to grant such preferential tax treatment only to owners of forest land who agree to adopt specified management practices would not meet the constitutional requirement of uniformity, and hence would not be within the power of the General Assembly.

If enacted into law substantially as recommended, the differential timber tax should serve to stimulate and encourage progressive forest management upon a steadily increasing portion of the forest area of the State. Sixty per cent of the gross area of North Carolina is forest land, now making but a small part of its potential contribution to the income of the people of the State. The solution of the taxation problem would give sharp impetus to the already evident trend toward the establishment of private forestry on a stable and profitable basis. It is now within the power of the Legislature to take those steps that will enable us to say proudly—progress is *again* on the march in North Carolina!

CHAIRMAN BANKHEAD

Senator John H. Bankhead, of Alabama, has been elevated to the chairmanship of the Joint Congressional Committee on Forestry, succeeding former Senator William G. McAdoo, of California. Representative Hampton P. Fulmer, of South Carolina, continues as vice-chairman. The two new members of the Committee were named as Senators W. J. Bulow, of South Dakota, and D. Worth Clark, of Idaho. They succeed former Senators McAdoo and James P. Pope.

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Scotch Pine 5 yr. Transplants		12 to 15 in.	15.00
12 to 18 in.	25.00	Japanese Red Pine 4 yr. Transplants, 8 to 15 in.	15.00
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8 to 15 in.	20.00	12 to 18 in.	15.00
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White Pine 4 yr. Transplants		Scotch Pine 5 yr. Transplants	
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Japanese Red Pine 4 yr. Transplants, 8 to 15 in.	25.00	White Pine 4 yr. Transplants	
Norway Spruce 4 yr. Transplants		4 to 10 in.	15.00
4 to 10 in.	16.00	Colorado Blue Spruce 5 yr. Transplants, 4 to 8 in.	15.00
Red Spruce 6 yr. Transplants		Norway Spruce 5 yr. Transplants	
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PARKWAYS AND LAND VALUES, by John Nolen and Henry V. Hubbard. Published by Harvard University Press, Cambridge, Massachusetts. 133 pages. Illustrated. Price \$1.50.

Volume XI of the Harvard City Planning Studies—with chapters devoted to the parkways of metropolitan Boston, Kansas City and Westchester County. An intensely interesting review of the functions of the parkway in the regional plan, of the nomenclature, evaluation of its service, and its future benefits under modern circumstances.

TALKING LEAVES, by Julius King. Published by the Harter Publishing Company, Cleveland, Ohio. 62 pages. Illustrated. Price, twenty cents.

Outstanding among low priced books on trees is "Talking Leaves," whose excellent drawings and brief descriptions give at a glance the essential features of fifty-nine American trees native to the eastern half of the United States.

FLORIDA WILD FLOWERS, by Mary Francis Baker. Published by the Macmillan Company, New York City. 245 pages. Illustrated. Price \$3.50.

Eight hundred of the more common flowers, plants, and trees native to Florida are identified and described. An explanation of the component parts of plants, the structure and characteristics of the flowers and leaves, together with an index key, assist in identifying and locating the plants listed.

WOOD PRESERVATION, by George M. Hunt and George A. Garratt. Published by McGraw-Hill Book Company, New York City. 457 pages. Illustrated. Price, \$5.00.

Developments in the practical application of commercial preservative treatment of wood. Chapters on the agencies of wood destruction, the materials used in wood preservation, the methods of their application, and the properties of wood which has been treated.

FLOWER PORTRAITS, by Blanche Henrey. Charles Scribner's Sons, New York City. Illustrated. 128 pages. Price \$3.00.

The most beautiful of patterns find their inspiration in flower shapes and artists will delight in the sixty lovely full-page photographs of flowers and flowering shrubs presented by Miss Henrey, who has long specialized in flower portraiture. Brief and interesting descriptive text accompanies each flower portrait.

GUIDE TO THE APPALACHIAN TRAIL IN MAINE (Third Edition). Published by the Appalachian Trail Conference, 901 Union Trust Building, Washington, D. C., 395 pages; 8 maps. Price \$1.50.

Intimate descriptions, with maps, covering the northern 266 miles of a skyline trail extending 2,049 miles from Mt. Oglethorpe in northern Georgia along the height of land to the granite monolith Katahdin, in the central Maine wilderness.

NEW BOOKS and



OTHER PUBLICATIONS

A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request. Books on this list—as well as other books—may be purchased at a discount of ten per cent from published prices if they are ordered through the Association.

THE WORLD WAS MY GARDEN, by David Fairchild. Published by Charles Scribner's Sons, New York City. 494 pages, ills. Price \$3.75.

In writing his fascinating experiences in the garden of the world, what David Fairchild gives us in this book is practically the autobiography of one of America's foremost botanists and agricultural explorers. As a young botanist he started out to scour the world, and his explorations—leading him into the remotest corners of the sphere—have never ceased. It is impossible to give here even a glimmer of the content of this most readable of books for, while Dr. Fairchild's style is simple and direct and his humor delightful, he has gone far afield from botanizing and recorded instances of tremendous contemporary interest, with particular reference to invention and the work of Dr. Alexander Graham Bell and also the earliest developments in aviation. An expert with the camera, he has illustrated his book with over 200 exceptionally beautiful and meaningful pictures. It has truly been said that the story of David Fairchild's life is also the story of plant introduction in this country.

FUR-BEARING MAMMALS OF CALIFORNIA, by Joseph Grinnell, Joseph S. Dixon and Jean M. Linsdale. Two volumes. Published by the University of California Press, Berkeley. 777 pages. Illustrated. Price \$15.00 for the two volumes.

On the subject of the fur-bearing mammals of California, these two volumes present just about all the information that could be desired by hunters and trappers, by Californians whose interests in farming, irrigation and livestock grazing are affected by the presence of fur-bearing mammals, and by the public. To the zoologist, both professional and amateur, they are priceless.

Improving Colorado Home Grounds, by George A. Beach. Bulletin 445, Colorado State College, Colorado Experiment Station, Fort Collins, Colorado.

Erosion on Roads and Adjacent Lands, by Arnold M. Davis. Soil Conservation Service, Leaflet 164, U. S. Dept. of Agriculture. Supt. of Documents, Washington, D. C., 5 cents.

Forest Resources of the North Louisiana Delta, by R. K. Winters, J. A. Putnam and I. F. Eldredge. Southern Forest Experiment Station, Forest Service, U. S. Dept. of Agriculture. Misc. Pub. No. 309—Supt. of Documents, Washington, D. C., 20 cents.

Growth and Drain in the Forests of Central and Southwest Mississippi. Southern Forest Survey Release No. 34, Sou. For. Exp. Station, New Orleans, La.

Forest Resources of the Ouachita Mountain Region of Arkansas. Southern Forest Survey Release No. 36, Sou. For. Exp. Station, New Orleans, La.

The Forest Survey of the Douglas Fir Region. Pacific Northwest For. and Range Exp. Station, Portland, Ore.

Forest Resources of Central and South Florida. Southern Forest Survey Release No. 38. Sou. Forest Exp. Sta., New Orleans, La.

Cape Hatteras National Seashore—a prospectus of proposed new type of federal recreation area, prepared by the National Park Service of the Dept. of Interior, Washington, D. C.

Noteworthy Trees of New Jersey—published by the Department of Conservation and Development, Division of Forest and Parks, Trenton, N. J.

The Pymatuning State Game Refuge and Museum—published by the Pennsylvania Game Commission, Harrisburg, Pa., price 10 cents.

Result and Application of a Logging and Milling Study in the Western White Pine Type of Northern Idaho—published by and available on request from the Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Montana.

Yield of Even-Aged Stands of Ponderosa Pine, by Walter H. Mayer. Forest Service of the U. S. Department of Agriculture, Technical Bulletin No. 630. Superintendent of Documents, Washington, D. C., price 15 cents.

"The Tree Is A Fountain of Health—Protect It!" An attractive pamphlet, modern in design, issued by the Department of Forestry of the Government of Mexico. Its whole content is fourteen pointed quotations stressing the importance of forest protection, ending with the impressive statement: "The Mexican People Cooperate With Their Government by Practical Means in the Reforestation of the Country."

Better Gardening—What, When and How to Plant. Handbook of suggestions and instructions for the home gardener. Published by the Union Fork and Hoe Company, Columbus, Ohio. New enlarged edition, price 25 cents.

AMERICAN FORESTS

Silcox Presents Regulation Plan

"FEDERAL forest regulation that clearly fits within the democratic pattern in its relation to the various states, and to private timberland owners," was foreshadowed by F. A. Silcox, chief of the federal Forest Service, in perhaps the most significant of the papers which filled the three-day program of the annual meeting of the Society of American Foresters, held in Columbus, Ohio, in December.

On the principle that if democracy is to work, authority must be focused rather than diffused, Mr. Silcox visioned a system of state-wide committees working in close contact with state foresters and their staffs in which "the authority for decisions would definitely rest with the authorized administrative agency." This

in turn, he added, would be "subject to check by individuals, groups, county boards, and the like. Every process would be used through meetings and discussions to arrive at mutually agreed upon enforceable regulations before putting them into effect. The minority would be provided with first the right of appeal to arbitration and later to the courts."

Thus, he concluded, "forest regulation must come as a result of standards openly arrived at. They must reflect local needs and conditions. They must be flexible and fair. They must protect both local and nationwide values and services; conserve public interests; safeguard those of dependent communities, and the private owner; and provide for decentralized and understanding application."

Ickes Urges Park Wilderness Policy

Congressional action to establish and set standards for wilderness national parks, in which roads would be limited by law, and from which hotels would be totally excluded, has been recommended by Harold L. Ickes, Secretary of the Interior. The proposal comes in connection with the current discussion relative to the inclusion of the Kings River Canyon, in California, in a national park.

Such a policy, established with congressional authority, the Secretary stated, would include not only the Kings River Canyon, but the newly created Olympic National Park, in Washington, the proposed Isle Royale National Park, in Lake Superior, and similar areas untouched by civilization, all of which could be preserved forever from further encroachments upon primitive wildernesses.

The statement by Secretary Ickes follows, in part:

"In 1935 I issued a statement of policy, declaring the purpose of the Department, if the proposed Kings Canyon National Park, in California, is authorized by Congress, to treat it as a primitive wilderness, limiting roads to the absolute minimum, maintaining foot and horse trails, excluding elaborate hotels, admitting all responsible packers, promoting good fishing, endeavoring to restore nearly vanished wildlife; also to respect all valid existing equities, make every effort to conserve the watershed and recreational values of the region, and seek boundaries which will attain these ends without infringing upon the future development of the Kings River, for water storage and other uses.

"These principles of administration I wish to reaffirm. Since 1935, the Olympic National Park has been established and most of the lands have been acquired for the authorized Isle Royale National Park. Both will be maintained as wilderness areas. The problems of administration arising in connection therewith, and the questions arising in connection with the proposed Kings Canyon National Park, point to the need

for a greater stability of policy than can be insured by administrative orders. Areas dedicated as wilderness national parks should be protected forever by provisions of law designed for that purpose. This in addition to the protection all national parks receive by law against commercial activities.

"I shall welcome it if the Congress of the United States will define and set standards for wilderness national parks, as well as provide for wilderness areas to be proclaimed and similarly protected by law in other national parks."



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Douglas Fir 15-18 inch XXX	35.00		2- 4 feet X	25.00	225.00
Norway Spruce 12-18 inch XX	17.50	110.00	Red Bud (Cercis) 18-24 inch S	4.00	30.00
Colorado Spruce 9-12 inch X	13.50	95.00	Red Oak 18-24 inch S	10.00	55.00
12-18 inch XX	17.50	130.00	4- 6 feet X	65.00	
Red Pine 12-18 inch X	8.00	45.00	Pin Oak 12-18 inch S	7.50	55.00
Scotch Pine 12-18 inch XX	8.50	55.00	Sugar Maple 12-18 inch S	5.00	25.00
5-12 inch X	4.00	18.00	4- 6 feet X	35.00	300.00
Mugho Pine 6- 8 inch X	7.00	45.00	Paper-white Birch 12-18 inch S	5.00	35.00
Hemlock 10-15 inch XX	26.00	180.00	Black Walnut 12-18 inch S	4.50	30.00
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weighing respectively seventy-five, eighty
and ninety-five pounds. The engine is a
two-cylinder, horizontal opposed four-
cycle air-cooled type of aircraft construc-
tion in design and materials. The motor
develops five horsepower at 2,800 r.p.m.
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For identification the wood preserva-
tive which covers their ash handles is col-
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Forest Service is preparing to equip 12-
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to protect Northwest forests from fire.

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ment for the fighting units in parcels,
each of which will take care of the needs
of twenty-five men. Most of the fire camps
have returned their equipment and this is
reconditioned and discarded parts re-
placed. If a fire calls for twenty-five men
this year one can go to the warehouse and
dump a few boxes and bundles into a
truck and there will be everything in the
load to care for the needs of the men when
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kettles, cookers, table supplies, bedding,
shovels and axes.

One fire a few years ago required 6,000
men. Last year there was no heavy de-
mand on the big warehouse here.

DEVELOPMENTS IN FIRE PREVENTION

One promising new development in the
United States Forest Service is the in-
creasing use of planes for dropping sup-
plies to fire-fighting crews in locations re-
mote from roads. The new techniques can-
not be wholly relied upon as a substitute
for slow and costly pack mule transporta-

tion because smoke sometimes prevents
dropping operations, but air transporta-
tion of supplies has come to stay.

Another promising new development is
the power-driven Bosworth trencher.
This 126-pound machine is not a clear-
ing tool, but it makes a trench for use in
back firing at the rate of a chain or two
per minute. It is so light that it can be
taken to a fire with the first men, and
should contribute much to fast construc-
tion of held line on fires, both small and
large, when the ground is not too rough.

RADIO TO AID IN DISASTERS

A wireless system over which word of
approaching danger could be flashed
throughout the state will be developed by
Pennsylvania as a protective measure
against forest fires and disastrous floods.

Centering in Harrisburg, the network
will embrace short-wave low-power trans-
mitters located in each of the state's 242
fire towers, with automatic relay trans-
mitters at numerous strategic points.

Dr. James F. Bogardus, secretary of
Forests and Waters, said that the net-
work would bring reports from the de-
partment's weather instruments along the
various watersheds to be used in fore-
casting rising waters.

In addition, the system would be used
for reporting outbreaks of forest fires.

TO STUDY WOOD TOWERS

A joint study of the use of wood for
lookout towers and other structures is to
be made by the federal Forest Service
and the Timber Engineering Company,
the National Lumber Manufacturers As-
sociation reported recently.

C. M. Granger, assistant chief, Forest
Service, has advised the Timber Engi-
neering Company that they are arranging
to detail one of their engineers to the
project for an indefinite period. The For-
est Service engineer will supervise the
collection of cost data on wood and steel
lookout towers now being gathered, and
he will also work with the TECO and
NLMA engineers on industry recommen-
dations covering designs, specifications,
fabrication, erection and transportation
matters relating to wood towers and other
structures.

The co-operative study will get under
way at the earliest practicable moment.

A-W SNOW PLOW

The Austin-Western Road Machinery
Company has announced the Giant V
Plow and the Rear-Mounted Snow Wing
for use on their new "99" Motor Grader.
These attachments provide low cost, well
constructed plows that make an efficient
snow removal unit. A number of "99"
Motor Graders are already in use by the
federal Forest Service.

ASK THE FORESTER

Forestry Questions Submitted to The American Forestry Association, 919 - 17th St., N. W., Washington, D. C., Will Be Answered in This Column. . . . A Self-Addressed Stamped Envelope Should Accompany Your Letter.

QUESTION: What is the difference between a fungus, such as Dutch elm disease and white pine blister rust, and a virus, such as the recently reported phloem necrosis of elm?—O. M. B., Washington, D. C.

ANSWER: A fungus disease is caused by a parasitic plant which establishes itself within the cells and tissues of the host plant. It is reproduced by spores, which like the parasite itself are capable of being germinated under laboratory conditions and can be observed under a microscope. The virus is much smaller and less tangible. It is so small as to be invisible under a high powered microscope and usually incapable of being caught or separated from the infected sap with fine filters. Accordingly a virus is usually identified by the effect of sap or soluble plant materials upon a host plant, rather than by visible appearances.

QUESTION: What is the meaning of the name "Gila"?—E. F., Ohio.

ANSWER: It appears to be of Indian origin and means "spider." It was probably first applied in 1630 to a province in New Mexico where the Gila River had its source. This river was known earlier as the Rio del Hambre de Jesus.

QUESTION: Are forested areas in the United States diminishing or gaining?—K. S., Pennsylvania.

ANSWER: A forest survey which will eventually cover the entire United States is as yet only complete in the southeast and in the Douglas fir area of the northwest. Until completed, there is little information to add to the figures in the Copeland Report, which shows the total forest area of the United States to be about 615,000,000 acres, of which 495,000,000 acres are described as commercial. The survey indicates that the total forest area is perhaps greater than the 615,000,000 acres previously recorded, but much of this is of poor quality and adds little or nothing to the total volume of timber in board feet. The Forest Service reports that while the area of forest and woods growth may be increased, the saw timber volume is actually shrinking.

QUESTION: How can scarlet oak, *Quercus coccinea*, be identified from others of the so-called black or red oak group?—F. A. M., Michigan.

ANSWER: Scarlet oak leaves are, on the average, smaller than those of the red and black oaks, and of a papery thin texture, in contrast to which the others

seem coarse and leathery. While they hang on the tree into the winter, they are usually shed earlier than are the leaves of pin oak, which they closely resemble. The buds of scarlet oak are hairy only on the tip, while those of red oak are smooth, and the buds of pin oak and black oak are hairy. The acorn cup has a glossy appearance, and the closely appressed, bluntly triangular scales are pubescent, or finely hairy, except those on the elevated center, which are smooth and shiny. In contrast, the acorn cup of black oak is covered with looser scales of a dull ashen or reddish-gray color. The meat of the kernel is white and less bitter than the yellow meat of the black oak acorn. The scaly ridges of the mature bark are divided by shallow ridges, and are neither so regularly flat-topped as those of red oak nor so roughly broken as those of black oak, *Quercus velutina*. The inner bark is reddish and not bitter.

QUESTION: When and where was the first state forest established?—R. L., Indiana.

ANSWER: New York was the first state to undertake public forest administration. The Act of May 15, 1885, established permanent forest preserves in the Adirondack and Catskill regions. The same Act provided for a state system of fire protection and encouraged the practice of forestry on private lands.

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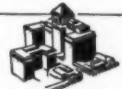
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THANK YOU FIRE FIGHTERS

For GOOD WORK DONE—and for the splendid cooperation given our "Fight Fire With Water" Demonstration this past summer. We're sorry we couldn't call on all those interested in Fire Prevention this year. However, if you were one of the many we could not reach, here's another OPPORTUNITY. We are now busy making up our itinerary for the coming year. We will complete this QUICKLY. You would profit by watching this actual, efficient Demonstration of modern Fire Fighting.

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Attend the
64th
Annual Meeting
 of
THE
AMERICAN
FORESTRY
ASSOCIATION
at Washington, D. C.
MARCH 22, 1939

Forest fires continue to exact a heavy toll from the nation's forest wealth. To check this devastating menace, and to reduce our heavy annual loss from fire, greater public and congressional participation is needed.

Realizing this all important fact, The American Forestry Association will dedicate its 64th Annual Meeting to forest fire prevention and protection. The occasion will be a one-day meeting at Washington, D. C., on March 22, climaxed by a National Forest Fire Prevention Dinner—an event of outstanding interest, and many surprises.

Active cooperation of all individuals and organizations, whatever their field of conservation interest, is essential to the success of this meeting. If the red plague of fire is to be removed from conservation's shield, all conservationists, whether their interests lie in forestry, wildlife, soil erosion, or scenery, must band together in the common cause of fire protection. Therefore, organizations and groups desiring to reserve tables for the National Forest Fire Prevention Dinner should make early reservations.

Put this important date on your calendar and plan to attend.

CONSERVATION CALENDAR

Important Bills in Congress With Action
 January 3-10, 1939

APPROPRIATIONS

H. R. 964 — ROGERS, MASSACHUSETTS — Making appropriations for the fire-hazard reduction operations and timber-salvaging operations conducted by the Federal Surplus Commodities Corporation and Northeastern Timber Salvage Administration. Introduced January 3, 1939. Referred to the Committee on Appropriations.

H. J. RES. 83—TAYLOR, COLORADO— Making appropriation of \$725,000,000 for addition to the \$1,425,000,000 appropriated for Emergency Relief. Introduced January 10, 1939. Referred to the Committee on Appropriations.

FORESTRY

S. 226—McNARY (H. R. 300—DOXEY)— To promote sustained yield forest management and assure a continuous and ample supply of forest products. Introduced January 4, 1939. Referred to the Committee on Agriculture and Forestry.

S. 228—McNARY—To increase authorizations for cooperative fire protection to \$9,000,000 and allow \$1,000,000 for control of forest insects and diseases. Introduced January 4, 1939. Referred to the Committee on Agriculture and Forestry.

H. R. 800 — FULMER — To authorize the Secretary of Agriculture to enter into cooperative agreements with farmers for the survey, improvement and management of their forest lands to provide constructive emergency work and increase the purchasing power of farmers and wage earners. Introduced January 3, 1939. Referred to the Committee on Agriculture.

H. J. RES. 36 — TREADWAY — Authorizing an appropriation of \$5,000,000 for full payment of the approved schedules of prices for salvaged timber products purchased or to be purchased by the Federal Surplus Commodities Corporation, Northeastern Timber Salvage Administration, and for other purposes. Introduced January 3, 1939. Referred to the Committee on Agriculture.

GOVERNMENTAL FUNCTIONS

S. 209 — KING — To establish a branch of the Department of the Interior in one of the public land states; to transfer to such branch certain bureaus of offices of the Department of the Interior. Introduced January 4, 1939. Referred to the Committee on Public Lands and Surveys.

S. 251 — McNARY — To amend the Civilian Conservation Act of June 28, 1937, to permit the Director to construct or improve roads in connection with irrigation development. Introduced January 4, 1939. Referred to the Committee on Irrigation and Reclamation.

H. R. 66—KLEBERG—To center in the Department of Agriculture all functions which involve the use, development, and conservation of soils and organic resources. Introduced January 3, 1939. Referred to the Committee on Agriculture.

NATIONAL FORESTS

H. R. 190 — RAMSPECK — To authorize the Secretary of Agriculture to cooperate with the states in the development, operation, and maintenance of recreational areas within national forests and on lands owned by the states or political subdivisions thereof. Introduced January 3, 1939. Referred to the Committee on Agriculture.

S. 26—WHEELER—To empower the President to create new national forests and add to existing national forests in Montana. Introduced January 4, 1939. Referred to the Committee on Agriculture and Forestry.

NATIONAL PARKS AND MONUMENTS

H. R. 286 — TAYLOR, TENNESSEE — To authorize the appropriation of \$100,000,000 to locate and construct the Eastern National Park-to-Park Highway through the States of Virginia, North Carolina, Tennessee, Kentucky, and West Virginia and the District of Columbia.

LANDS

S. 231 — McNARY — To authorize the acquisition of forest lands over which highways, roads, or trails are constructed or to be constructed with federal funds in order to preserve or restore their natural beauty. Introduced January 4, 1939. Referred to the Committee on Agriculture and Forestry.

S. 243 — McNARY — To extend the provisions of the Forest Exchange Act to lands adjacent to national forests in Oregon. Introduced January 4, 1939. Referred to the Committee on Public Lands and Surveys.

WATER AND STREAM CONTROL

H. R. 295 — PARSONS (H. R. 922 — SPENCE, H. R. 1951—ELAND)—To create a division of water pollution control in the United States Public Health Service, and for other purposes. Introduced January 3, 1939. Referred to the Committee on Rivers and Harbors.

MISCELLANEOUS

S. 19 — HAYDEN — To establish a National Resources Board. Introduced January 4, 1939. Referred to the Committee on Public Lands and Surveys.

S. 436—LOGAN—To amend the Tennessee Valley Authority Act by including the Cumberland River and its basin. Introduced January 9, 1939. Referred to the Committee on Agriculture and Forestry.

FORESTRY IN CONGRESS

By G. H. Collingwood

Most significant conservation feature of President Roosevelt's budget message on January 5 was the recommendation that the CCC "should be continued beyond June 30, 1940, and I recommend that Congress enact during its present session the necessary legislation to establish the corps as a permanent agency of the government."

The fact that adjustments in appropriations recommended for the several forestry and conservation agencies of the government are minor indicates continuance of established policies. The recommended appropriation to the Forest Service of \$19,827,285 for the coming fiscal year exceeds the current appropriation by \$266,885. Breaking this down, the item for administration of the national forests has been increased by \$1,109,246 to a total of \$12,679,000. This adds \$500,000 to make a total of \$1,008,000 to strengthen the campaign against white pine blister rust and a new item of \$500,000 for logging national forest timber in areas where such logging will not be undertaken by private operators, where the work will give employment to distressed local labor, accomplish silvicultural benefits, and yield increased revenue. Offsetting this is a reduction in the item for forest acquisition from \$3,000,000 to \$2,000,000. No estimates are included with which to make the Fulmer Act effective.

Forest fire cooperation under the Clarke-McNary Act continues at \$2,000,000, but the portion available for departmental services in the District of Columbia has been increased from \$50,000 to \$74,040, together with a small increase for personal services in the field, and the usual allotment of \$45,000 for the forest taxation inquiry. In spite of these changes, the amount available as grants to the cooperating states continues at \$1,804,110.

Cooperative farm forestry, as authorized in the Norris-Doxey Act of May 18, 1937, is included as a special departmental item, separate from the Forest Service estimates. Neither here, nor elsewhere in the Budget is there a direct estimate for continuing the Prairie States Forestry Project, but of the \$600,000 recommended for the coming year, \$400,000 is earmarked for "farm forestry projects, including necessary investigations"; \$100,000 for "cooperation with states for extension activities in development of farm forestry"; and \$100,000 for "production and distribution of forest planting stock from existing nurseries to farmers."

Without clarifying the Secretary's order of last October under which the action phase of farm forestry is to be handled by the Soil Conservation Service, the

administration of this proposed appropriation is handled by the Secretary of Agriculture without reference to any bureau. There is, however, a significant provision authorizing the Secretary to demand financial or other participation by each of the cooperating agencies, equal to the federal contribution, and furthermore that no portion of the appropriation shall be used to establish new nurseries. Elsewhere, in the summary of departmental estimates, is the following statement: "The execution of all physical land-use programs which involve operations by the government on farm lands is assigned to the Soil Conservation Service," but no reference to the Norris-Doxey item is included in the reorganization summary.

In addition to this item the Budget carries an estimate of \$100,000 to continue the cooperative distribution of forest planting stock and an increase of \$43,162 to make \$100,000 available for cooperative extension work in farm forestry, each of which are authorized in the Clarke-McNary Act. Also included is \$125,000 (an increase of \$25,000) to provide cooperation and advice in the application of forest management principles to private forest lands.

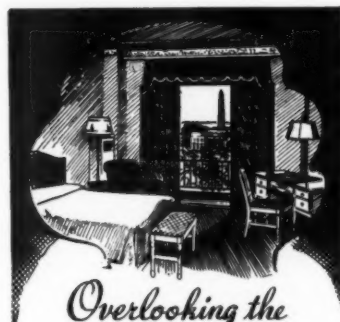
Small additions are recommended for two of the forest research items authorized in the McNary-McSweeney Act, together with the inclusion of a new appropriation of \$30,000 to establish a tropical forest experiment station in Puerto Rico. Support of the Forest Products Laboratory would be increased from \$628,361 to \$700,000 to provide for expanding their studies relative to low-cost housing. The only other increase for research is one of \$10,000 to make \$131,295 for investigations in forest economies.

Dutch elm disease eradication continues at \$378,489, but recommendations for a considerable addition are included in plans for the first deficiency appropriation bill. Further allotments are expected when the new emergency appropriation is made. Present allotments will be exhausted on February 7.

The deficiency bill is also expected to include a large sum to supplement the emergency funds already available for clearing up the fire hazards, and damage resulting from the New England hurricane.

No increase is recommended for white pine blister rust control, which continues at \$300,000.

The appropriation of \$4,163,691 to the Biological Survey represents a net increase of \$275,351. Of this amount \$14,851 is for operation of the newly established Patuxent Wildlife Research Refuge in Maryland; \$50,000 is added to make



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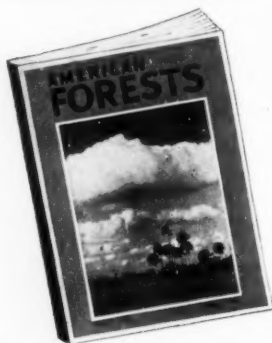
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- Protection of Fish and Game and other wildlife under sound game laws.
- Prevention of Soil Erosion
- Preservation of Wilderness for Recreation
- Establishment of State and National Forests and Parks
- Development of Forestry Practices by the forest industries.
- Education of the Public, especially children, in respect to conservation of America's natural resources.
- Forest Recreation as a growing need for the development of the nation.

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\$365,000 available for enforcement of the Migratory Bird Treaty Act; an addition of \$142,500 so as to give \$650,000 for protection and management of the increasing areas of federal mammal and bird reservations; and \$60,000 for the purchase of private lands to round out the Upper Mississippi River Wildlife Refuge.

The estimate of \$295,000,000 for the CCC exceeds currently available funds by \$8,467,935 and anticipates continuance of 1,500 camps and a maximum enrollment of 300,000, as at present.

While the National Park Service is credited with a larger estimate than is mentioned here, with which to care for

public buildings used by other government agencies, as well as for the national capital parks, the amount clearly allocated to the national parks is \$3,923,740. This is \$426,945 less than is credited to the parks for the current year, largely because of a current appropriation of \$743,265 for the purchase of lands to complete the Great Smoky National Park. There is also included \$333,560 to replace worn-out and obsolete road equipment necessary to maintain the increased mileage of national park roads and trails, and to improve recreational and sanitary facilities in the parks. (Table showing forestry and conservation highlights in the 1940 budget appears on page 82.)

Dr. Hoffman's Cherry Tree

(Continued from page 65)

the trial court. The case was appealed to the General Term, which affirmed the decision of the lower tribunal. Then the persevering Abner shifted the arena of legal battle to the Court of Appeals at Albany. His leading counsel was Amasa J. Parker, one of the most distinguished lawyers of the state.

But the smile of triumph remained on Sarah's face. First, the Supreme Court of Vermont, in *Skinner vs. Wilder*, a somewhat similar case concerning ten bushels of apples, sustained the principle for which she was contending. Then, in 1872, eight years after her suit was begun, the New York court of last resort held that the Connecticut decision in *Lyman vs. Hale*, and the Vermont decision in *Skinner vs. Wilder* was good law in the Empire State, and that the title to the fruit of a tree runs with the title to

the trunk, no matter how far the roots and limbs may wander.

The remedy of the other fellow, it seems, is to cut the offending growth even with the line, or bring action against the owner for damages and to abate the nuisance. Also, it appears that when the trunk of a tree stands directly on the line the two land owners together own the tree in common.

The Port Byron case is now cited as *Hoffman vs. Armstrong*. It is the final decision on the subject and its wisdom has not been questioned anywhere in the United States. The cherry tree by the Erie Canal from which Sarah Hoffman fell has gone the way of all grass, but it lives in our law libraries as the humble instrument through which it was definitely settled that the owner of the trunk of a tree is also the owner of the fruit which hangs over the division fence.

To the Highest Mountain

(Continued from page 78)

site on the rocks by Sierra Creek, our "take off" for Mt. Whitney. A mirror lake at our front door held the reflection of the distant Kaweah Range, while at our back stood the great Whitney, with questionable clouds drifting about its broad crown. Those clouds kept us weather-minded all the next day, for a clear view from the top of Mt. Whitney seemed mighty important to all of us. As we waited for our big climb we fished and hiked and joked. And lo, our patience was rewarded, for the last day of August dawned with the delicate tinting of wispy clouds and the promise of fair skies.

We eagerly broke our last high country camp for the thrill of the windswept switchbacks on the southwest shoulder of Whitney. Up and up we went, through grotesque piles of jumbled rocks. It was fortunate that our trail ponies were emotionally immune to scenery, for at precipitous points they would calmly gaze over the sides without apparent imagination or fear—while we supplied both. We finally hitched them to the rocks at the top of the United States and summoned

enough courage to look over the edges. The vast panorama of the Sierra, of which we had seen but a small part, extended as far as the eye could see on all sides. But even such scenery as that couldn't be enjoyed without warmth—so we rallied to the call of hot tea and baked chicken.

The morning ride had been the thrill of a lifetime, but the afternoon trek was probably the most enjoyable of the whole trip, in spite of the fact that it was leading us out of the wilderness. Our 6,000 foot descent to Whitney Portal and the end of the road was down Lone Pine Canyon. From the narrow granite pass on Mt. Muir, down the snowy switchbacks, by lakes and cascades, and through refreshing meadows and timber, we praised the Inyo National Forest all the way.

Our last night out found us bedded down at the foot of a beautiful falls. The next day cars would take us back to Bishop, to busses and trains—but that life ahead of us would be enriched by the gem of happiness found on the Sierra trails.

TEACHING AXMANSHIP

BY WILLIAM M. HARLOW

Since the days of the early pioneers, hatchets and axes have possessed an irresistible attraction to American boys and girls of camping age. To chop skillfully and cleanly is an art not gained overnight, but one to be proud of when once mastered.

Although short handled hatchets are many times more dangerous than ordinary, light weight, long handled axes, probably ten hatchets may be found to every ax in most summer camps. However, with the safety rig described, first developed by the author at the Sargent College of Physical Education Camp, Peterboro, New Hampshire, either hatchet or ax may be used.

The log, preferably of some soft wood such as pine, spruce, basswood, or poplar, is laid solidly upon two notched cross-logs so that its under surface is an inch or two above the ground. To each end of a piece of heavy plank, six inches in length and two inches in width, is then spiked a stake, and the

stakes are driven into the ground so that the top of the plank is about two inches above the top of the log and does not quite touch it along its face, as illustrated in the cut.

With all danger of cutting the feet removed, the beginner can now stand close to the log, which is the proper position—

but one often not taught because of possible injury when unprotected. In fact, with this rig it is necessary to stand almost over the log, otherwise one may strike the helve, or handle, against the plank. Speed should never be the primary aim, especially at first; and in staging chopping contests, points should be given not only for the first one to chop through the log but also for the cleanest notch if cut in a reasonable time.

Chopping in to a vertical trunk, as in felling a tree, is much more dangerous than "logging up," and should not by any means be attempted until one is fairly proficient in chopping timber laid horizontally.



A student chopping wood in safety. The six-inch board, or "rig," between the log and axman protects both feet and ankles.

NEW STATE FORESTERS

Announcement has been made of the appointment of Don J. Weddell, in charge of forestry experiments at Alabama Polytechnic Institute, as state forester of Georgia, to succeed Frank Heyward, Jr., who becomes southern conservation director for the American Pulpwood Association. At the same time Governor-elect Arthur H. James of Pennsylvania announced the appointment of G. Albert Stewart, a Clearfield publisher, to succeed Dr. J. F. Bogardus as secretary of the State Department of Forests and Waters.

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Index to ADVERTISERS February, 1939

American Telephone and Telegraph Company, The	2nd Cover
Austin-Western Road Machinery Co.	4th Cover
Bartlett Manufacturing Company	85
Beebe Brothers	93
Blue Ridge Rhododendron Gardens	85
Boyd Nursery Company	85
Caterpillar Tractor Company, The	51
Chalfonte-Haddon Hall	91
Fechheimer Brothers Company	90
Hay-Adams House	93
Herbst Brothers	85
International Harvester Company, Inc.	79
Keene Forestry Associates	85
Kelsey Nursery Service	89
Knapp Company, Fred C., The	93
Loring, J. Alden	90
Musser Forests, Inc.	85
Pacific Marine Supply Company	91
Raleigh Hotel	95
Randolph, L. F.	90
Smith & Company, D. B.	91-95-3rd Cover
Stetson Company, John B.	89
Tabor, Rollin H.	85
Warren Axe and Tool Company	95
Western Maine Forest Nursery	85-87
Weyerhaeuser Sales Company	81
Wisconsin Aquatic Nurseries	90
Wood Industries, Gar	83

WHO'S WHO

Among the Authors in this Issue

JAMES G. K. McCURE (*North Carolina Looks Ahead in Forest Taxation*) is president of The American Forestry Association.



James G. K. McClure

In 1916 he moved to a farm in the Blue Ridge Mountains of North Carolina, where he became interested in working out a practical plan to find a market for the things that can be grown on the mountain farm, to the end that production on these farms might be stimulated and the people make a better living. This plan took a definite shape in a cooperative movement of mountain farmers called the Farmers Federation, of which he has been president and general manager since it was formed in 1920. Mr. McClure, in addition to his many other affiliations, is widely known for his conservation work. For eight years he served as chairman of the Committee on Forests, Water Resources and Inland Fisheries of the North Carolina Board of Conservation and Development, and in 1934 he was elected president of the North Carolina Forestry Association.

RAYMOND D. GARVER (*The Nation's Timber Stand*) entered the Forest Service in 1912. After more than twenty years' experience on the western national forests and at the Forest Products Laboratory at Madison, Wisconsin, he was transferred to Washington, D. C., in 1936, as director of the Forest Survey, which position he now holds.



Stewart H. Holbrook

STEWART H. HOLBROOK (*Logging the Blowdown*), who needs no introduction to the readers of AMERICAN FORESTS, grew up in logging camps, taking part in many river drives. Long a contributor to national magazines, Mr. Holbrook has just had his first book published—a natural history of the American lumberjack and entitled "Holy Old Mackinaw."

MARY DOWNING (*To the Highest Mountain*), assistant librarian at Kansas City Junior College, won her spurs as a Trail Rider three years ago, when she was a

member of both the Montana and Wyoming expeditions. In 1937 she rode into the Olympic Wilderness of Washington. Here, however, she writes of her experiences on the 1938 pioneer Trail Rider expedition into the Kings River Wilderness of California.

R. K. WINTERS (*The Magic of the Cypress Swamp*) has since 1928 been with the Branch of Research of the United States Forest Service. For a number of years he was engaged in studies of hardwood timber growth and management on the alluvial lands of the lower Mississippi valley. It was there that he first caught "the magic of the cypress swamp"—and, he says, it is a first-rate disease if indulged in during the off season for mosquitoes.



R. K. Winters

OTTAMAR HAMELE (*Dr. Hoffman's Cherry Tree*) has been a harness maker, farmer, printer and the publisher of a weekly paper. In 1903 he was admitted to the bar, and practiced law for many years. Since 1926 he has been connected with the Bureau of Internal Revenue in a legal capacity.

G. H. COLLINGWOOD (*Limber Pine and Forestry in Congress*), who is forester for The American Forestry Association, presents here another of his Tree Series, and tells us, too, of forest happenings in Congress.

BLYE ENGLIS (*Death on Murderers' Creek*) lives at Portland, Oregon, and is connected with the Public Library there. Vivaly interested in all phases of conservation, she has been engaged in nature work since 1915.



Blye Englis

A. ROBERT THOMPSON (*Your Shade Trees*), in charge of shade tree work with the branch of forestry of the National Park Service, continues this new department.

COVER—*The Mystic Cypress Shoreline* of Lake Eloise in Florida. Photograph by Devereux Butcher.

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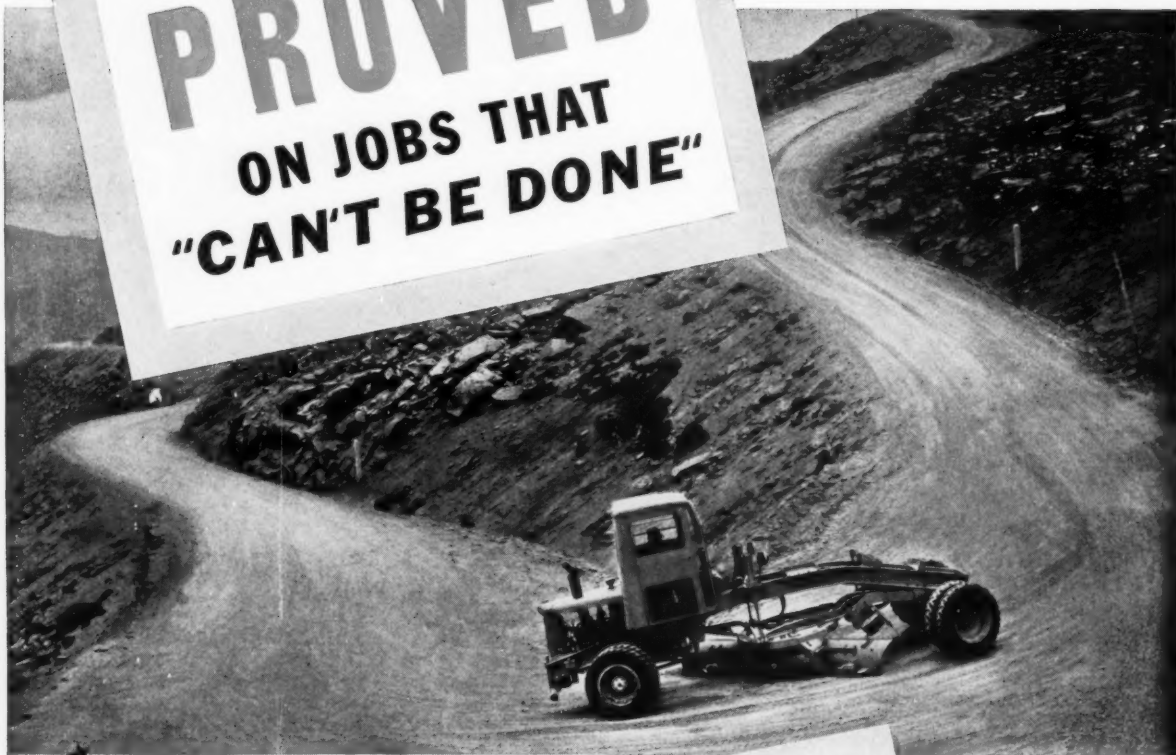
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